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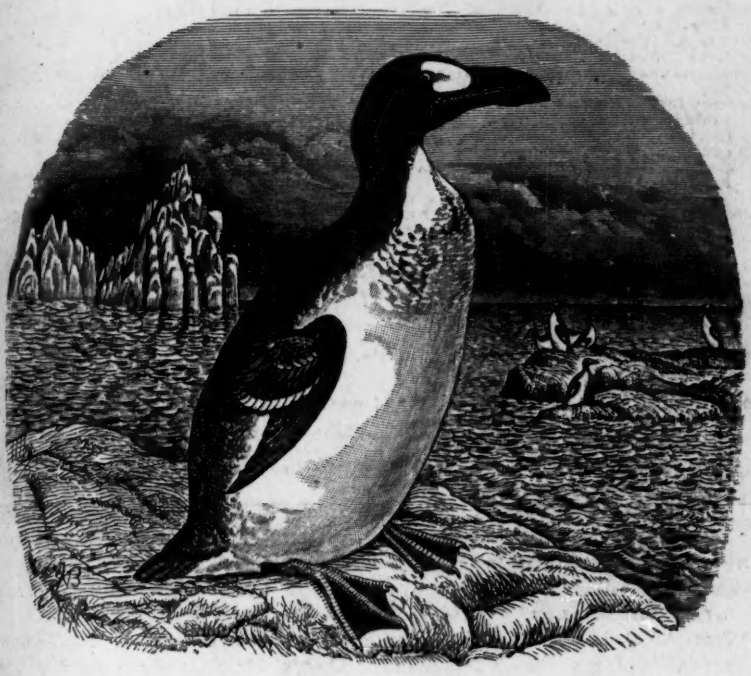

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'THE AUK,' published as the Organ of the AMERICAN ORNITHOLOGISTS' UNION, is conducted as a **Magazine of General Ornithology.** In general character it differs little from the late 'BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB,' of which it forms virtually a Second Series.

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THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. III. JULY, 1886. No. 3.

SOME BIRDS OF ARIZONA.

BY EDGAR A. MEARNS.

(Assistant Surgeon, U. S. A.)

GENUS **Harporhynchus** CABANIS.

RED-VENTED THRASHER. **Harporhynchus crissalis.**
LECONTE'S THRASHER. **Harporhynchus lecontei.**
PALMER'S THRASHER. **Harporhynchus curvirostris palmeri.**
BENDIRE'S THRASHER. **Harporhynchus bendirei.**

PROFESSOR COUES has already pointed out (Birds of the Colorado Valley, p. 61), the especial interest attaching to the genus *Harporhynchus*, as represented in this general region. This genus, he states, "reaches its highest development in the Colorado Basin, where nearly all the known species occur, some of them in abundance; while several of them are entirely confined, so far as we now know, to this region. As much can be said of no other genus. *Harporhynchus* is, in fact, the leading feature of the Colorado avifauna, whether we consider the relative number of species there represented, or the extremely local distribution of some of them. The fringilline genus *Pipilo* offers much the same case; and there is a further singular parallelism between the two. Both

are represented, in the United States at large, by a single species, heavily and even richly colored, in comparison with the pale dull shades of the numerous species or races of the Coloradan region: in both cases there are species restricted to this Basin; in both, rounded wings shorter than the graduated tail, large strong feet, and terrestrial habits are conspicuous features in comparison with their respective allies. The parallel might even be pushed to the length of recognizing individual species of one genus as representatives of those of the other. *Pipilo aberti* is the counterpart of *H. crissalis* and several others are almost as clearly analogous."

Although highly characteristic of the Arizona avifauna, this genus is represented over the northeastern half of the Territory by a single species (*H. crissalis*), and that of local distribution, avoiding high altitudes, and hence absent from many large areas; but the southwestern half of Arizona, in greater part occupied by open desert plains extending eastward from the Colorado River, is inherited by all of the four species above named, occurring in greater or less abundance. Another species ("*Harporhynchus curvirostris* [*verus*]") is attributed to Arizona by Dr. Coues in the second edition of his 'Check List of North American Birds,' page 6; but, so far as known, typical *H. curvirostris* is limited, in its United States range, to the valley of the Rio Grande.

All of the Arizona species are of comparatively late discovery, the types of *H. crissalis* and *H. lecontei*, originally described in 1851 and 1858, by Messrs. Lawrence and Henry, respectively, having remained unique for years; while *H. curvirostris palmeri* and *H. bendirei* remained undescribed until 1872 and 1873, respectively. None of the species became at all well known until quite recently; but during the past few years much has been done to elucidate their life histories by Captain Bendire, Dr. Palmer, Messrs. Henshaw, Brewster, Stephens, and others.

I have embraced the present opportunity, when giving the results of my own study of the Arizona Thrashers, for which I have enjoyed exceptionally fine opportunities when travelling in various portions of the Territory during their breeding season, to bring together the scattered literature, and present something like a connected account of each species.

Without dwelling upon the characteristics of the genus as a whole, I will pause to notice some of the peculiarities of the species under consideration. All agree in the characters of an elon-

gated, graduated tail of somewhat decurved rectrices, and short, rounded wings; but the discrepancy in the relative size and form of the bill and extremities, is considerable. However, a glance at the accompanying table of comparative dimensions and ratios, will show that these four species form a continuous series in the order named. In *H. crissalis* and *H. lecontei*, the elongation of the bill and tail is coincident with the abbreviation of the wings and legs; and the arcuation and slenderness of the bill is exactly correlated to its attenuation, *H. crissalis* having the longest, slenderest and most arcuate bill, while *H. bendirei* has the shortest, stoutest and straightest.

TABLE I.—MEASUREMENTS OF SPECIES, AND RATIO OF THEIR DIMENSIONS TO THEIR ENTIRE LENGTH.

SPECIES.	Number of Specimens.	Length.	Alar Expanse.	Wing.	Tail.	Culmen from Base.	Culmen from Nostril.	Gape.	Tarsus.	Middle Toe and Claw.	Its Claw alone.
DIMENSIONS (*Averages*).—*Males.*											
Harporhynchus crissalis	12	305.5	326.3	100.7	143.5	38.4	30.4	42	33.9	30.4	8.1
Harporhynchus lecontei	3	284	319	101	132	32	24	36	32	30	8.2
Harporhynchus curvirostris palmeri	6	293	360	110	126	31.6	24.7	36.8	34.1	33.6	8.8
Harporhynchus bendirei	5	260	342	106	121	25.5	19.6	30.7	34	31.2	8
DIMENSIONS (*Averages*).—*Females.*											
Harporhynchus crissalis	10	303.9	316.7	97.6	142.5	38.1	30.1	41.2	33	30.2	8
Harporhynchus lecontei	4	277	312	97	126	32	24	36	31	28.9	8
Harporhynchus curvirostris palmeri	2	290	352	112	125	33.2	25.5	38.5	33.7	32.5	9
Harporhynchus bendirei	1	260	330	101	122	30	19	30	33	31	8
RATIOS.—*Males.*											
Harporhynchus crissalis	. . .	1.00	1.07	.33	.47	.13	.10	.14	.11	.10	.027
Harporhynchus lecontei	. . .	1.00	1.12	.36	.46	.11	.08	.13	.11	.11	.029
Harporhynchus curvirostris palmeri	. . .	1.00	1.23	.38	.43	.11	.08	.13	.12	.12	.030
Harporhynchus bendirei	. . .	1.00	1.29	.39	.45	.10	.07	.11	.13	.12	.030
RATIOS.—*Females.*											
Harporhynchus crissalis	. . .	1.00	1.04	.32	.47	.13	.10	.14	.11	.10	.026
Harporhynchus lecontei	. . .	1.00	1.13	.35	.45	.12	.09	.13	.11	.10	.029
Harporhynchus curvirostris palmeri	. . .	1.00	1.22	.39	.43	.11	.09	.13	.12	.11	.031
Harporhynchus bendirei	. . .	1.00	1.27	.39	.47	.10	.07	.12	.13	.12	.030

H. crissalis and *H. redivivus lecontei* are remarkable for their plain, unspotted plumage; while the former is unique in the genus in producing immaculate eggs.

H. crissalis is an inhabitant of wooded hillsides, rugged cañons, and the borders of streams at intermediate altitudes; but the other species are found in low, desert plains, spending much time among the cactuses.

Harporhynchus crissalis HENRY. RED-VENTED THRASHER.

Toxostoma crissalis HENRY, Pr. Phila. Acad. X, May, 1858, 117 ("New Mexico").

Harporhynchus crissalis BAIRD, Birds N. Am. 1858, pp. 351, 923; ed. of 1860, pl. 82 (Mimberes to Rio Grande, N. M., Henry; Fort Yuma, Cal., Ives).—HENRY, Pr. Phil. Acad. XI, 1859, p. 107.—SCL. P. Z. S. 1859, p. 339 (critical).—BAIRD, Review Am. Birds, 1864, pp. 47, 352 ("Region of the Gila River, to Rocky Mts.").—COUES, Proc. Phila. Acad. XVIII, 1866, p. 65 (Arizona).—COOPER, Am. Nat. III, 1869, p. 473; *ib.* Birds Cal. I, 1870, p. 18, fig.—COUES, Key, 1872, p. 75 ("Valley of the Rio Grande and Colorado"); *ib.* Am. Nat. VI, 1872, p. 370 (descr. nest and eggs); VII, 1873, p. 328, fig. 67.—BREWER, Proc. Bost. Soc. Nat. Hist. XVI, May 21, 1873 (descr. eggs, taken in Arizona, by Capt. Charles Bendire).—BD. BR. & RIDGW. N. Am. Birds, I, 1874, p. 47; III, 1874, p. 500 ("Region of the Gila River, to Rocky Mountains; Southern Utah").—YARROW & HENSH. Rep. Orn. Specs. 1874, p. 6.—HENSH. Rep. Orn. Specs. 1874, p. 40 (Saint George, Utah), p. 97 (Arizona); *ib.* List Birds Arizona, 1875, p. 154; *ib.* Zoöl. Expl. W. 100 Merid. 1876, p. 158 (Arizona).—COUES, Birds Col. Val. 1878, p. 73, fig. 13.—STEPHENS, Bull. N. O. C. III, April, 1878, p. 93 (Gila River in New Mexico, and in Arizona).—RIDGW. Catal. Birds N. Am. <Proc. U. S. Nat. Mus. III, 1880, p. 167.—BREWST. Bull. N. O. C. VI, 1881, p. 72; VII, 1882, pp. 69, 74.—COUES, Check List N. Am. Birds, 1882, p. 26.

Harporhynchus crissales BAIRD, Ives's Rep. Colo. Riv. pt. V, 1861, p.6.

Red-vented Thrasher; Henry's Thrush; Crissal Thrasher, Authors.

HABITAT.—New Mexico, Arizona, Southern Utah, Nevada and California in the Colorado Valley, and probably extending southward into Sonora, Mexico; absent from such portions of this region as are over 5000 feet in altitude.

DESCRIPTION.—*Adults in breeding dress* (Nos. 4499, ♀ ad., February 18, 1886, and 4502, ♂ ad., February 20, 1886, Fort Verde, Arizona; E. A. M.), Above nearly uniform ashy-brown; below a paler shade of the same but clearer ashy; under tail-coverts and crissum chestnut-rufous, this color

fading as it passes forward to the epigastrium into pale rusty-yellow; tibiæ and lining of wings washed with the same. The chin, middle of the throat, maxillary stripes and spotting upon cheeks nearly white. There are narrow blackish stripes upon the sides of the throat, cutting off the white maxillary stripes above them. The outer rectrices have conspicuously paler, rusty tips. Under plumage lead-color. Irides brownish straw-color. Bill, blackish, or very dark neutral tint. Legs and feet dusky olivaceous-brown; claws plumbeous-black.

TABLE II.—MEASUREMENTS OF *Harporhynchus crissalis.*

No.	Sex and Age.	LOCALITY.	Date.	Length.	Alar Expanse.	Wing.	Tail.	Culmen from Base.	Culmen from Nostril.	Gape.	Tarsus.	Middle Toe and Claw.	Claw alone.
2712	♂ ad.	Fort Verde, Arizona.	April 10, 1884.	306	320	99	144	40.4	32	44.5	34	31	9.6
2719	♂ ad.	" " "	April 11, 1884.	305	318	95	140	38.5	30.5	42	33	29.4	8
2830	♂ ad.	" " "	May 2, 1884.	300	327	99	143	38	30	42	30	32	9
2999	♂ ad.	" " "	June 4, 1884.	316	330	100	142	43	34	45	35	32	9
3306	♂ ad.	" " "	Sept. 10, 1884.	313	322	99	148	38	30	40	33	30	8
3035	♂ ad.	" " "	Dec. 17, 1884.	315	330	100	145	39	31.5	43	33	31	9
3748	♂ ad.	" " "	Feb. 5, 1885.	290	315	97	137	36	30	42	34	30	8
3767	♂ ad.	" " "	Feb. 17, 1885.	315	334	103	152	39	31	41	33	31	7.5
3935	♂ ad.	Deming, New Mexico.	April 20, 1885.	294	333	105	136	39	31	42	35	30	8
3948	♂ ad.	" "	April 22, 1885.	305	333	102	137	37	30	41	35	30	8
3959	♂ ad.	Chiricahua Mts., Arizona.	April 30, 1885.	298	326	100	150	35	25	40	34	31	8
4502	♂ ad.	Fort Verde, Arizona.	Feb. 20, 1886.	309	330	105	148	38	30	42	31.5	27	7
2799	♀ ad.	Fort Verde, Arizona.	April 29, 1884.	290	304	92	138	38	26.5	39	31.5	31	8
2831	♀ ad.	" " "	May 2, 1884.	297	311	92	134	38	30	41	34	30	8
3018	♀ ad.	" " "	June 16, 1884.	300	313	95	133	38	30.5	41	32	31	9
3600	♀ ad.	Near Prescott, Arizona.	Nov. 25, 1884.	305	320	98	148	38	32	41	33	29	8
3604	♀ ad.	Fort Verde, Arizona.	Dec. 3, 1884.	303	317	95	143	39	31	41	34	31	9
3695	♀ ad.	" " "	Jan. 10, 1885.	310	330	102	145	36	30	42	34	30	7
3947	♀ ad.	Deming, New Mexico.	April 20, 1885.	313	322	101	147	39	31	43	34	30	8
4479	♀ ad.	Fort Verde, Arizona.	Nov. 13, 1885.	312	320	102	149	41	33	43	33	31.5	9
4309	♀ ad.	" " "	Nov. 25, 1885.	297	307	99	143	36	29	41	32	29	7
4499	♀ ad.	" " "	Feb. 18, 1886.	312	323	100	145	38	29	40	33	30	7.5
Average of twelve males				305.5	326.3	100.7	143.5	38.4	30.4	42	33.9	30.4	8.1
Maximum of twelve males				316	333	108	152	43	34	45	36	32	9
Minimum of twelve males				290	315	95	136	35	25	40	31.5	27	7
Average of ten females				303.9	316.7	97.6	142.5	38.1	30.1	41.2	33	30.2	8
Maximum of ten females				313	330	102	149	39	32	43	34	31.5	9
Minimum of ten females				290	304	92	133	36	26.5	39	31.5	29	7

Comparison of these specimens with a very large series of adults taken at all seasons shows no sexual variation whatever in the plumage and very little difference in size. Winter specimens in new plumage are somewhat darker, while summer examples become much bleached, and the plumage worn to shreds, the rectrices having little left but their shafts. About a dozen of the specimens before me are more or less strongly washed with pale rusty yellow upon the under surface.

A young nestling (No. 3026, ♀, June 16, 1884, Fort Verde, Arizona; E. A. M.), in which the quills are only half grown out, has all of the markings of the adult. The throat, black stripe below the ramus of the jaw, and under tail-coverts are exactly as in adults; and the general plumage differs only in having a redder, rustier tone, most pronounced upon the auriculars, upper tail-coverts and tips of the rectrices. The abdomen is paler, almost whitish. Legs more plumbeous than in adults. This slight discrepancy in coloration is seen through a series of young specimens up to the period of the autumnal moult, when they come out exactly like their parents only fresher and darker, and can then only be distinguished from fully adult examples in fresh plumage by anatomical characters.

DIMENSIONS.—Male. Length, 305; alar expanse, 326; wing, 100; tail, 143; culmen from base, 38; culmen from nostril, 30; gape, 42; tarsus, 34; middle toe and claw, 30; claw alone, 8. Female. Length, 304; alar expanse, 317; wing, 98; tail, 142; culmen from base, 38; culmen from nostril, 30; gape, 41; tarsus, 33; middle toe and claw, 30; claw alone, 8.

HABITS.—I first met this Thrasher on March 24, 1884, about fifteen miles east of Prescott, when riding from Fort Whipple to Fort Verde, Arizona. When we left Whipple in the morning the ground was covered with snow; but a ride of a few miles, during which we descended several hundred feet, brought us to a changed climate. A few Crissal Thrashers were then occasionally noted among the thickets of scrub oak, and their numbers increased until we reached the Verde Valley.

The Red-vented Thrasher is abundant all over the Verde bottom land, preferring mesquite thickets and the vicinage of streams. One of the first traits that we noticed about it was that it possessed a song of very remarkable scope and sweetness, having all the power of the Mockingbird, and an evenness and perfect modulation which that bird may well envy. It is one of the few birds that truly sing; and it shares, in this Territory, this rare gift with its three congeners—Bendire's, Palmer's and Le Conte's Thrashers. It is no warbler of pretty ditties, nor yet a medley singer like the Eastern Thrasher or the Mockingbird, but discourses pure, natural music from the top of the tallest bushes, where it perches, with its tail hanging down, in precisely the same attitude as the Brown Thrasher of the East. Its season of

song is more protracted than that of any other species with which I am familiar. Its best efforts are put forth during the mating season, in February, March, and April; but, except during July and August, when the heat becomes intense and the Thrasher's plumage is bleached almost to whiteness, and worn to tattered shreds amongst the thorny chapparal in which it finds food and some shelter from the sun, it sings commonly throughout the year. The warm sunshine of a winter's day suffices to bring out its full song, which perchance has been hushed by a cold snap and flurry of snow. At first come a few notes of doubtful confidence, barely sufficing to remind one that it *can* sing; then a thoughtful, somewhat desultory song, till the power of the tropical sun asserts itself, or the genial influence of its mate is felt, when this harmonious soliloquy grows into a serene and dignified performance that challenges attention and excites admiration. The Crissal Thrasher is a shy bird, and only sings when it fancies itself secure from intrusions upon its solitude; but, about ranches, where it associates with man, it loses some of its wildness and becomes more confident and trusting. After the autumnal moult, when berries, grapes, and other acceptable food is plentiful, there is a distinct revival of song in this species. It has no loud call-note like the other species.

It is, like the rest of the Thrashers, highly terrestrial, and runs swiftly upon the ground from one bush to the next, often jetting its long tail upward. It mounts to the bush-tops to sing by hopping from branch to branch, and clambers through dense, spiny brushwood with surprising agility. In general it may be set down as a shy bird, though at times becoming quite familiar. It makes but little use of its short, rounded wings as a rule, but occasionally makes long flights across a cañon or valley, setting its wings and soaring, like Gambel's Quail.

Before the end of April young birds were seen that were already strong on the wing and appeared to be taking care of themselves, showing that this species breeds early. As is the case with many birds of this warm climate, its season of reproduction is unusually extended. I did not find its nest until the 3d of July, when one was found in a patch of sage-brush, built in a bush, close to the ground. Its presence was betrayed by the actions of the male bird. The female was sitting upon three eggs, but skulked off upon the ground, among the bushes, and was immediately lost sight of.

Another nest was discovered on June 14, in an isolated mesquite grove. It was placed upon a horizontal bough of a large mesquite-bush (*Prosopis* [*Algarobia*] *glandulosa*), where it made a conspicuous object, owing to its bulk and exposed position. It was well built and contained two eggs, resembling those of the Robin. The proprietors of this nest divided their attention between the care of their nest and a family of young not yet capable of shifting for themselves. Two days later this nest was taken with its full complement of four eggs, the female parent, and a pair of the young of the previous brood. The plumage of the latter is fresh and soft, contrasting strongly with the worn and faded feathers of the old bird. The only difference in the dress of the young in first plumage from the adult consists in the much darker tail, and brighter plumage generally, of the young bird. If any tangible differential characters can be assigned to the young, they may be summed up by saying that the tail and colors generally are darker and brighter, the markings more distinct, and the castaneous of the underparts nearly confined to the tail-coverts and crissum, instead of tingeing the abdomen as in adults. The irides, in birds just hatched, are whity-brown, gradually becoming paler, and finally assuming the yellowish color, which never becomes bright yellow even in adult birds. The tail of the parent exhibits an appearance which is common at this season: the central tail-feathers, being subjected to the effects of light far more than the lateral ones which they cover and protect when the tail is closed, are bleached to pale ashy-drab, quite different from the outer ones. The same is noted in the case of the White-winged Dove (*Melopelia leucoptera*) and other species in this land of perpetual sunshine. The eggs of this set are elongated oval in shape, rather pointed, and measure 29 × 20, 29 × 19.5, 30 × 20, and 28 × 20.5 mm. respectively. The nest was coarsely made of heavy twigs without, and finer vegetable materials within.

The nest just described, and another containing four young about a week old, found in a dense haw-bush a couple of days later, are the only ones that I have examined containing so large a complement; and I am inclined to the opinion that three is the usual number.

For several months succeeding my arrival at Fort Verde, I studied the ornis of the Valley without the aid of books, and had

in hand a fine suite of Red-vented Thrashers when my little library arrived; then I was astonished, on turning to Dr. Coues's 'Birds of the Colorado Valley,' to read at the commencement of his account of this species: "I have never seen the bird alive." This is a remarkable instance of the possibility of a common species being overlooked, even in the midst of its distributional centre; for I have repeatedly found it but a few miles from Fort Whipple (but at considerably lower altitude), where Dr. Coues was stationed at different times; and at Verde the species is always common, and nests each year in a patch of mesquite within a hundred yards of the quarters he occupied when Post Surgeon here.

On February 18, 1886, wishing to have a fresh example of this species in hand when writing its description, I had but to take my gun and stroll into the nearest mesquite thicket and shoot a specimen, which proved to be a female. When skinning it the next day, I suspected that it had already oviposited even at this early date, and upon dissecting it obtained positive proof that it had laid two eggs. The next morning I returned to the place where I shot the specimen, and immediately found its nest in the mesquite-bush whence it was first flushed two days before. The male parent was sitting upon the eggs, but slipped nimbly to the ground and ran out of view among the shrubbery, and was only secured after several visits made to the nest during the day. These specimens being in perfect plumage were selected for the types of the foregoing description. During the thirty days preceding the discovery of this nest, the lowest temperature of each twenty-four hours, taken with the minimum thermometer, averaged 32° F., with extremes of 24° and 42° F.; and the temperature for the same period, taken with the maximum thermometer, averaged 67° F., with extremes of 75° and 55° F. The nest was saddled upon the fork of a mesquite-bush, about four feet from the ground, in part supported by the thorny branches of a neighboring bush. It rested upon a pile of sticks, and was surrounded by a bristling array of spiny 'haw' and mesquite twigs of moderate size; within this barricade the nest proper was placed; it is bowl-shaped, and, with the exception of a few feathers, composed entirely of vegetable substances very neatly felted into a compact, warm nest. The principal materials are fine withered grass, stems of plants, and shreddy inner bark. Externally it measures 150 mm. in

height by 300 mm. in width; the internal depth, 45 mm.; internal diameter, 90 mm. The two eggs are uniform bluish-green, darker and greener than specimens that have been in my cabinet nearly two years, which have faded to a bluish tint resembling a Robin's egg. Thinking that the green color might be measurably due to the yellow yolk contained, I emptied one shell of its contents, after which it appeared to be even clearer greenish than before. The eggs measure 30 × 20 and 29 × 20 mm. respectively.

Crissal Thrashers inhabit by preference bushy places in the vicinity of water courses in the lower valleys, but range upward upon the oak-clad foothills to an altitude of 5000 feet, or in autumn occasionally even a little higher. The Verde Valley here has an altitude of 3,500 feet, and a much warmer climate than the bordering mesas and foothills, which in winter are often deeply covered with snow. Although they may be occasionally met with in the snow belt, most of them descend into the warmer valleys in severely cold weather. I have seen numbers of them feeding upon the bare sand upon the edge of the Verde River after a snowstorm. Making proper allowance for their being more conspicuous in winter on account of the absence of foliage, the species is undoubtedly far more plentiful in the Verde Valley during the winter season than in summer, when many of those which winter here move upward into the zone of scrub oaks, in which they breed in abundance wherever they can find water within a convenient distance. The exodus takes place about the end of February, after which the species becomes comparatively scarce; and by the middle of March nearly all of those remaining are settled and occupied with domestic affairs. In the surrounding highlands it breeds late in the spring. Nests were found upon the banks of Big Bug and Ash Creeks, at an elevation of nearly 5,000 feet, which contained fresh eggs as late as the middle of May. Some were built in oak bushes, and one conspicuously located in a swinging grape-vine six feet above the ground.

The Red-vented Thrasher is omnivorous. It feeds largely upon berries and wild grapes. A thorny species of 'haw' is plentiful along the Rio Verde, which bears an abundance of berries, of green, red, and dark glaucous-blue colors, according to the degree of maturity; upon these the Thrashers delight to feed. Insects constitute an important article of their diet at all seasons.

I found this Thrasher tolerably common in the vicinity of Fort Mojave in May, upon both the Arizona and Nevada shores of the Colorado, and also at the Needles farther down the River, in California, where the species has been taken as far south as Fort Yuma, opposite the mouth of the Gila River. Near the Colorado River, at the mouth of Diamond Creek, it was found later in the season; but, farther east along the Colorado Cañon, I did not meet with it. Even in the deep, warm cañon of Cataract Creek, where Mockingbirds were singing in November long after their departure from the Verde Valley, none were found. Dr. Palmer found it breeding at Saint George, in Southern Utah. It is very abundant in the Agua Fria Valley, west of the Rio Verde, and is found all the way to the confluence of that stream with the Gila River, from which point I have traced it as far eastward along the Gila as the mouth of the San Carlos River, near which many were heard singing among the dreary sandhills of the Indian Reservation, and thence northward through Tonto Basin. Others have found it along the Gila in New Mexico; but I have only noticed it farther east, about Deming, New Mexico, in the dry course of the Mimbres River, near the point where it was first discovered by Dr. T. C. Henry of the Army.

Unlike the three remaining species, it is rarely found in desert country away from streams. When crossing the hundred miles of desert between the Gila River near Maricopa and Tucson, it was not positively identified once, although I thought I saw one near Picacho Station, when returning in May. Along the Santa Cruz and Rillito Rivers, near Tucson and Fort Lowell, the species was again found in small numbers, and was abundant thence, in suitable localities, as far east as Bowie Station, where it was found to breed, as well as in the neighboring foothills of the Chiricahua Mountains, where I found a nest containing two newly-hatched young and an egg on the last day of April. The young were on wing in the dry plain of San Simon Valley below. From the abundance of this species there, I do not doubt that it ranges southward into Mexico.

Harporhynchus lecontei. LECONTE'S THRASHER.

Toxostoma lecontei LAWR. Ann N. Y. Lyc. V, Sept., 1851, p. 109 (near Fort Yuma).—BAIRD, Stansbury's Rep. Expl. Gt. Salt Lake, Utah, 1853, p. 329 ("Gila River").

Harporhynchus lecontei BONAP., Comptes Rendus, XXVIII, 1854, p. 57; *ib.* Notes Orn. Delattre, p. 39.—BAIRD, U. S. Mex. Bound. Rep. 1859, Birds, p. 12, pl. 12.—COOPER, Proc. Cal. Acad. Nat. Sci. 1861, p. 121 (Mojave River, Cal.)—BAIRD, Review Am. Birds, 1864, pp. 47, 452 ("Gila River; Fort Yuma"). COUES, Pr. Phila. Acad. 1866, p. 65 (near Fort Mojave, Arizona).—COOPER, Am. Nat. III, 1869, pp. 188, 473.—BREWST. Bull. N. O. C. VI, 1881, pp. 66, 68 (5th specimen; taken 10 miles northwest of Phœnix, Arizona).—STEPHENS, *ib.*, p. 66.—BREWST. *ib.*, VII, 1882, pp. 70-75 (2 spec. taken by F. Stephens 15 miles W. Maricopa, Arizona).—STEPHENS, Auk, I, 1884, pp. 355-358 (Agua Caliente, Col. Desert, Cal.); *ib.*, Auk, II, 1885, pp. 229-231 (Sonora, Mexico).

Harporhynchus lecontii BAIRD, Birds N. Am. 1858, p. 350, pl. I; ed. of 1860, p. 350, pl. 50 ("Fort Yuma, Gila River").—SCL. P. Z. S. 1859, p. 339.—COOPER, Birds Cal. I, 1870, p. 17, fig. (Fort Yuma to Mojave River, Cal.).—COUES, Ibis, II, 1866, p. 259.—BREWST. Auk, II, 1885, p. 196 (near Port Lobos, Sonora, Mex.).

Harporhynchus redivivus lecontei COUES, Key, 1872, p. 75 ("only two specimens known." Near Fort Yuma, *Leconte;* near Fort Mojave, *Coues*).—COUES, Am. Nat. VII, 1873, p. 328.—BD., BREW., & RIDGW. N. Am. Birds, I, 1874, p. 44, pl. 4, fig. 3.—HENSH. List Birds Arizona, 1875, p. 154.—RIDGW. Catal. Birds N. Am. < Proc. U. S. Nat. Mus. III, 1880, p. 167; *ib.* Proc. U. S. Nat. Mus. V, p. 45.

Harporhynchus redivivus lecontii COUES, Check-List N. Am. Birds, 1882, p. 26; *ib.* Birds Col. Val. 1878, p. 70, fig. 12.—HOLTERHOFF, Bull. N. O. C. VIII, 1883, p. 48 (descr. nest and eggs from Flowing Wells, middle of the Colorado Desert, Cal.—*Cf.* Am. Nat. for March, 1881, where this 'find' is first described).

Leconte's Thrasher, Authors.

Yuma Thrasher, COUES, Birds Col. Val. 1878, p. 70.

DESCRIPTION.—*Adult in Spring* (No. 3857, ♀ ad., March 30, 1885, 6 m. N. of Maricopa, Arizona: E. A. M.; No. 4010, ♂ ad., May 11, 1885, between Casa Grande and Sweet Water, Arizona: E. A. M.). General color above pale ashy-drab; below much paler, tinged with ochraceous. Chin and upper part of throat, white, bordered by indistinct dusky submaxillary stripes. Cheeks and maxillæ whitish, with dusky spotting. The color is yellowish white in the median line below, shading very gradually to ochraceous upon the flanks, crissum, and under tail-coverts. The old, faded rectrices are brownish-drab; the new quills clear dark fuscous, having ashy tips and outer webs to the external feathers. The concealed bases of the feathers are plumbeous.

Young in perfect first plumage (No. 4009, ♂, May 11, 1885, near Casa Grande, Arizona: E. A. M.). Excepting the quills and upper tail-coverts, the coloring is scarcely darker than in adults taken at the same season; and new quills in adults are quite as dark as the fresh ones of the young. The markings are the same, there being no spotting anywhere. The tone is a trifle rusty upon the back; and the upper tail-coverts are light red-

dish-brown. The wings are clearer ashy than in faded adults, and all of the wing-feathers faintly edged with brownish yellow. The under tail-

TABLE III.—MEASUREMENTS OF *Harporhynchus lecontei*.

No.	Sex and Age.	Locality.	Date.	Length.	Alar Expanse.	Wing.	Tail.	Culmen from Base.	Culmen from Nostril.	Gape.	Tarsus.	Middle Toe and Claw.	Claw alone.
3858	♂ ad.	Six miles north of Maricopa, Arizona	Mar. 30, 1885.	284	323	102	134	32	24	36	32	30	8
4010	♂ ad.	Between Casa Grande and Sweet Water, Arizona	May 11, 1885.	282	313	100	128	33	25	37	33	30	8
4031	♂ ad.	Desert Station, Arizona	May 14, 1885.	285	320	102	133	32	24	36	32	30	8.5
3857	♀ ad.	Six miles north of Maricopa, Arizona	Mar. 30, 1885.	280	310	95	127	33	24	38	32	29	8
3860	♀ ad.	Maricopa, Arizona	April 1, 1885.	283	316	101	133	33	25	37	31	28	8
4011	♀ ad.	Between Casa Grande and Sweet Water, Arizona	May 11, 1885.	274	311	95	120	33	25	37	32	29.5	8
4032	♀ ad.	Desert Station, Arizona	May 14, 1885.	272	310	97	124	30	22	33	30	29	8
4009	♂ juv.	Near Casa Grande, Arizona	May 11, 1885.	278	319	98	125	29	22	34	33	30	8
Average of three males.				284	319	101	132	32	24	36	32	30	8.2
Maximum of three males				285	323	102	134	33	25	37	33	30	8.5
Minimum of three males				282	313	100	128	32	24	36	32	30	8
Average of four females				277	312	97	126	33	24	36	31	28.9	8
Maximum of four females				283	316	101	133	33	25	38	32	29.5	8
Minimum of four females				272	310	95	120	30	22	33	30	28	8

coverts and anal region are paler. The tail is deep fuscous, inconspicuously tipped with rusty-ash. It presents the following dimensions: Length, 278; alar expanse, 319; wing, 98; tail, 125; culmen (chord), 29; culmen, measured from nostril, 22; gape, 34; tarsus, 33; middle toe and its claw, 30; the claw alone, 8.

A comparison of five adults with the two above described shows some variation in the shade of drab above, which is yellowish in the palest specimens—those taken latest in the season—and grayish in those in which the plumage is newer. The same is the case with the under plumage, which in one specimen is almost white, in others variously tinged with pale ashy-drab and ochraceous. The remiges are much paler than the other quills, and grayish. Most specimens exhibit a pectoral band contrasting with the white throat and pale color of the belly. The central rectrices, which appear to be usually moulted last, are in some specimens shortened and abraded, their pale drab color and worn condition being strikingly different from the new outer feathers. The irides are reddish-hazel. Bill plumbeous-black. Tarsi and feet varying from plumbeous-brown to greenish-olive; claws from dusky olive to plumbeous black.

DIMENSIONS.—Average of three males: Length, 254; alar expanse, 319; wing, 101; tail, 132; culmen (chord), 32; culmen from nostril, 24; gape, 36; tarsus, 32; middle toe and claw, 30; its claw alone, 8.2; graduation of tail, 16. Average of four females: Length, 277; alar expanse, 312; wing, 97; tail, 126; culmen (chord) 32; culmen from nostril, 24; gape, 36; tarsus, 31; middle toe and claw, 29; its claw alone, 8; graduation of tail, 17.

HISTORICAL RÉSUMÉ.—This Thrasher is at once the oldest and least known species of the genus in Arizona. Originally described by George N. Lawrence in 1851, from a specimen taken at the mouth of the Gila River, near Fort Yuma, it was not again met with by naturalists for a decade, when Dr. Cooper added it to the avifauna of California, stating that it was not uncommon in certain portions of the route between the Colorado Valley and the coast slope of California. It was so very wild that he could obtain but two specimens. He found an empty nest built in a yucca, similar to that of *H. redivivus*.

In 1865, Dr. Coues took a fourth specimen, in the month of September, near the Colorado River above Fort Mojave. The great work on North American Birds, by Baird, Brewer and Ridgway, treats of the subspecies *lecontei* before the original species, and adds nothing to previously published accounts.

The fifth specimen was taken by Mr. F. Stephens, on February 21, 1880, in Central Arizona, as reported by Mr. Brewster. He writes: "I took this specimen ten miles north-west of Phœnix. The locality was a bushy desert with large cacti.

At the time, it was singing in a similar manner to *H. palmeri*, only very sweetly. I should consider them excellent songsters. They do not mock other birds and the song is unlike that of *H. redivivus*." This bird and another seen near the same place were the only ones met with by Mr. Stephens in several years' experience, although he thrice traversed the route through California where Dr. Cooper found it; but he afterwards secured two more, on July 5, 1881, about fifteen miles west of Maricopa, Arizona, in a locality which he describes as follows: "Near the middle of 'Forty-five-mile Desert' between Maricopa Wells and Gila Bend. No cholla or other cactuses in the immediate neighborhood, but some giant cactuses about a mile away in the hills; a few mesquites and much scattered low brush in the vicinity; nearest water twenty miles away."

The nest and eggs of this rare species were discovered by Mr. E. Holterhoff, Jr., in the middle of the Colorado Desert, in California, at a station called Flowing Wells, and described in the 'American Naturalist,' Vol. XV, No 3, March, 1881.

In 1884, Mr. F. Stephens again found some of these Thrashers in the extreme western end of the Colorado Desert, about the end of March, and has given a very interesting account of this species and others (*cf.* Auk, I, pp. 353-358, October, 1884) observed by him near Agua Caliente, California, in which he dwells upon its exceeding wildness, notes its lengthy breeding season, and describes its supposed nest, built in the centre of a cholla cactus.

The only extra-limital record of the occurrence of Leconte's Thrasher was published by Mr. William Brewster, in 'The Auk' for April, 1885, p. 196; and his notice was added to by Mr. Stephens,* who took the specimens about fifteen miles inland from Port Lobos, on the Gulf of California. In this article Mr. Brewster mentions "a dozen or more" specimens, including all of those collected by Mr. Stephens, as having passed through his hands. Eight specimens collected by myself, during the spring of 1885, brings the number of known specimens up to about two dozen.

HABITS:—Any one who traverses the desert between Phœnix and Maricopa will probably catch sight of at least one of these pallid Thrashes, but may consider himself fortunate if he

* Auk, II, July, 1885, pp. 229-231.

captures a single specimen. It was in this uninviting region that I first saw Leconte's Thrasher.

The ride from the Gila River to Maricopa, on March 30, 1885, was through a desert, bordered by distant foothills, along the base of which are forests of giant cacti, some of which were found along the road. A sluice of the Gila was crossed a few miles from the river, along which were some cottonwoods and a quantity of tulé (*Scirpus*) and cat-tails; also plenty of green grass, in which Meadow Larks, and Thrashers of some species, were singing, the latter in mesquites. The rest of the country was bare of grass, sandy, and covered with scattered sagebrush and cacti (*Opuntia*, *Echinocereus*, *Cereus*, and *Echinocactus*), with occasional bare areas of white sand, where the sun's reflection was terrible. A rare squirrel (*Spermophilus tereticaudus*) was here abundant; and all of our superfluous energy was expended early in the day, which was intensely hot, in capturing some of them. As we rode along in the condition of stolid indifference to everything, which ensues after the limit of human endurance is reached, numberless lizards and horned toads of varied hues sped unheeded from our trail, until the orderly riding behind me exclaimed: "Doctor, what are they!" and pointed with his carbine to a pair of whitish birds upon the sand, with their tails cocked up over their backs, which I saw at a glance were Leconte's Thrashers. This pair, both of which I shot, were the only ones seen that day. They ran and hid with as much agility and cunning as the Chapparal Cock. As I pursued them, some large white lizards scuttled into their holes at the side of a sandy arroyo, which, in the glare of the sun, resembled the Thrashers, than which they were scarcely more fleet, both running before me with great speed, and disappearing from view. They seldom arose from the ground, and then only skimmed over the brushwood a little way, and then ran swiftly on in zig-zags, amongst the bushes and cactuses. They were secured with great trouble and exertion, for which they were doubtless the more highly prized. The female's ovary showed that four eggs would constitute the complement, and that they would soon have been deposited.

As so frequently happens when once the ice is broken, my acquaintance with Leconte's Thrasher grew apace after this introduction. The following day was spent at Maricopa, at which

place I sincerely trust none of my readers may be required to sojourn, at the same season of the year, unless it be for the purpose of capturing some of these wild will-o'-the-wisps, in which case they could scarcely select a more favorable collecting ground; but, unless more fortunate than I was, their toil will be but ill requited. The region is a desert waste of sand, covered in places with patches of sagebrush and groves of cholla cactuses, with a few mesquites and shrubs scattered along the dry arroyos.

I left camp in company with Dr. Paul Clendenin in the early morning, and these Thrashers were heard singing soon after, and were hunted until we were completely exhausted from following them, but we were obliged to return to our tent without a single specimen. Perched upon a mesquite-top, one would sing so loudly that it could be distinctly heard for more than a mile,—long before it could be seen upon the open plain, and it was usually off to another more distant perch about the time that we discovered it. As the day advanced and the scorching sun rose high in the sky, the Thrashers one by one stopped singing, forsook the bare mesquites, and ensconced themselves among the sparse brushwood along the dry water-courses, where we surprised several of them; but they always managed to retreat so adroitly, whether by running among the bushes or flying close to the earth, that we were completely baffled at each attempt to shoot them. When flying they dropped low down, and performed a part of each flight in a tortuous course under cover of the sage brush, ascending to the top of a mesquite like a Shrike. Their flight is, therefore, very difficult to follow; moreover the singing of several birds in different directions added to our confusion and diverted our attention.

On April 1 we marched from Maricopa to Casa Grande. As before, the Thrashers were heard singing during the early morning. Their song is remarkable for its loud, rich tone, and is at least as fine as that of any other of the genus. Their speed when running upon the ground is truly wonderful. A pair of them were running upon the railroad, and for a little way kept ahead of our trotting horses with ease. One of them was afterwards shot upon a bush, whence its mate flew out at the report, and was brought down upon the wing, but was so fleet that we were unable to catch it. Although a number of them were seen, and every effort made to secure more specimens, only one was taken.

On the 3d of April, after passing the foot of Picacho Peak—a high castellated butte to the right, which for several days had been a prominent landmark—we rode through a grove of 'sohuaras' (*Cereus giganteus*), among which were many arborescent cacti, in which were found the nests of all three of the desert species of Thrasher. That of *H. lecontei* was built in a cholla cactus seven feet from the ground, and closely resembles another, to be presently described. It contained one egg, having a ground-color of greenish-blue of a deeper hue than in *H. palmeri*, sparingly spotted all over with brown and lavender, the spots largest at the great end, where they tend to accumulate and form a wreath near that extremity. It measures 19 × 29 mm. This is the most eastern point at which the species has yet been found.

When returning over this route, between Casa Grande and Sweet Water, on the 11th of May, I shot a young Leconte's Thrasher; and when near Sweet Water took a pair of adults, and positively identified and secured their nest and three fresh eggs. They were first seen in the bush in which the nest was built, but flew out of sight when approached. After examining the nest, I concealed myself under a neighboring mesquite, in a position that was scarcely tolerable, on account of the burning heat radiated from the white sand. The sharp *whit* of the female kept me apprised of her whereabouts. At length, when I was almost roasted, she flew into the mesquite and almost immediately took her place upon the eggs. A chirping call from me quickly brought her to the top of the bush, where I shot her. With the male the case was different. It required a chase of an hour to secure him, and he would certainly have escaped were it not for his persistency in returning to the nest as often as lost sight of. His flight was often low, among the bushes, and impossible to follow with the eye; but, when soaring upward into a bush, he was usually detected. The sharply reiterated *whit*, or *quit*, also served me to keep track of him. At length I winged him at long range when flying, and then had an exciting chase upon the ground, shooting at him as I ran. His dexterity in running and hiding among the scattered greasewoods was admirable. This nest was placed in a mesquite, at a height of six or eight feet. It rested upon a fork and received additional support from a neighboring branch. It was composed of fine

grasses and weeds, the inner nest resting upon a mass of large sticks, loosely placed. The nest-lining was of grass and a few feathers. In shape the eggs are an elongated oval, tapering to a point at the small end, instead of being rather rounded and obtuse as in *H. palmeri*. Their ground-color is greenish-blue, somewhat deeper than in the egg of Palmer's Thrasher. One has large blotches of yellowish-brown and lavender sparingly scattered over the egg, a few extending nearly to the small extremity. In the others the marks are of the same colors, but reduced to fine spots, quite numerous, and confluent near the great end, but scarcely extending to the opposite extremity at all.

Leconte's Thrasher was seen at several points between Casa Grande and Phœnix during May, and was still singing. Upon the desert a few miles north of Phœnix I took a mated pair, on the 14th, in very nearly the same locality at which Mr. Stephens captured the fifth known specimen, in 1880. At this place, for the first and only time, I found all four of the Arizona Thrashers together.

[*To be continued.*]

THE NORTH CAROLINA MOUNTAINS IN WINTER.

BY CHARLES F. BATCHELDER.

ALTHOUGH of late years ornithologists have been ransacking nearly every accessible corner of this continent, they have, strangely enough, neglected the mountain region of the Southern Alleghanies. There seems to have been an impression that the birds of the Atlantic States were so well known that it would be idle to look for important discoveries there, where the fathers of our science had done their work, so the tide has been setting to the newer regions of the West. In truth, the earlier ornithologists were necessarily far from thorough in their explorations, and there have remained some corners of the field in which they worked where there is yet much to be gleaned. Such is the case with our southern mountains. Magazine writers have enlarged upon the beauties of their scenery, geologists and botanists have visited them, and have brought to light many interesting discov-

eries, but to the ornithologist it has remained until lately an unknown land.

Mr. William Brewster has the credit of being practically the first in the field, and his hurried, but most successful, exploration of the region last season has at length given us an accurate knowledge of its summer fauna. Its bird life at other seasons being still merely a subject for conjecture, I gladly seized an opportunity last December of investigating to a slight extent its winter fauna.

In the last number of 'The Auk' Mr. Brewster has given such an excellent description of the physical features of the country, and of the general character of its vegetation, that it is quite unnecessary for me to say more on this subject. In winter, of course, with the exception of the Coniferæ, the rhododendrons, laurel, and a few smaller shrubs, the woods are leafless. The weather during my stay was with few exceptions all that could be wished, cloudless skies and an equable temperature being the rule. It was cold enough for the ground to freeze hard almost every night, but the power of the sun's rays converted the surface into mud again in the daytime. The only exceptions to this beautiful weather were several cold blustering days with snow, a few flakes floating in the air, or even a fall of a few inches upon the ground. In almost every winter storm the higher mountains are whitened with snow, while at the same time in the valleys it is more likely to be raining. The mean temperature in December at Asheville (elevation 2250 ft.) is stated to be 37° F.

My first stay was at Asheville, and my observations here were made chiefly between December 10 and 19 inclusive. Much of the country about the town is under cultivation; corn and tobacco being the principal crops of the small farms which occupy the low ground along the rivers or lie nestled in the sheltered 'coves' between the hills.

About these farms, and in the thickets that border them or fringe the streamlets which take their rise in nearly every cove, I was sure to find some birds. Prominent among them were the Snowbirds (*Junco hyemalis*) in straggling flocks of ten or twenty. With them were often to be found Field Sparrows, Grass Finches, and Song Sparrows, though in smaller numbers, and occasionally two or three White-throated Sparrows, Goldfinches, or Bluebirds were to be seen in the company. One or

two Cardinals, or a Towhee, sometimes joined their ranks, probably not because they found such society especially congenial, but rather influenced by that gregarious spirit that seems more or less to possess all birds at this season, and I fancy they did not stay long with them. Indeed, all these species often showed a disposition to separate from each other, and, bound together as they were, chiefly by community of tastes in the matter of food, the make-up of the flocks was constantly changing.

Another conspicuous bird about these farms was the Carolina Wren. In the thickets along the little streams it was to be seen dodging back and forth; often the first intimation of its presence was a bit of its song, or a vigorous scolding when its affairs went wrong in any way.

Most of the land that is not farmed is covered with hard woods, oaks predominating, though there are some large tracts of pine woods (*Pinus inops* and *P. rigida*), especially on the hills. In these hard woods Tufted Titmice were generally to be found, usually in small parties of half a dozen or so, and frequently a few Carolina Chickadees with them. White-bellied Nuthatches and an occasional Woodpecker—the Downy was far the commonest species—were the only other birds sure to be found in these woods, though various others strayed into them occasionally, the Juncos perhaps the most frequently. Indeed these were ubiquitous, for though their favorite feeding-grounds were in the deserted cornfields and other open places, yet they were often to be seen here, and in the pine woods as well. The Carolina Chickadees and Tufted Tits also frequented the pines, which were the favorite resort of the Golden-crowned Kinglets. They were often in company with the Titmice, though quite as apt to wander about by themselves in little parties of four or five, family parties perhaps, but whether they had come from northern homes to winter here, or had only retreated from the neighboring mountain tops to the shelter of the valleys, was a puzzling question, and one that arose not only in the case of the Kinglets, but in that of others also of the winter visitors. In the pine woods I one day saw two Blue Jays, and I mention it because it was the only time I saw them outside of the town. In the town they were everywhere to be heard and seen, about the houses and in the gardens, where they were the most characteristic bird, the only others to dispute their territory being a few Tufted Tits and Carolina

Chickadees in the shade trees about the houses, and an occasional Bewick's Wren in the gardens. The latter were far from abundant, almost all apparently seeking a warmer climate for the winter. A small colony of House Sparrows that had established themselves in the town a year or more ago had not yet become numerous enough to interfere with the rights of the natives.

Two species I found in the neighborhood of Asheville that are not known to occur in this region in summer. They are the Hermit Thrush and the Meadow Lark. The former I saw singly two or three times; the latter was common in suitable places in small flocks, and I saw a single bird one day in a small field in the middle of the town.

From December 20 to 24 I stayed at Patton's at the foot of the Black Mountain range, a house well known to tourists who ascend Mt. Mitchell. It is near the head of Swannanoa Creek, the north fork of the Swannanoa River, and is closely hemmed in on all sides by mountains, the lofty summits of the Black itself, and nearer Big Craggy and other outlying spurs of the main range. While I was here I did not succeed in reaching any of the high summits of the range, but I spent a couple of hours one fine morning exploring the balsam growth that covers the tops and higher flanks of the mountains. My only reward for this search was a flitting glimpse of a Junco, whether *J. hyemalis* or *J. h. carolinensis* I could not decide, and though the day and place seemed favorable for birds, this was the only feathered creature to be found in the apparently tenantless woods.

The hard woods on the slopes of the mountains and at their base were not without birds. White-bellied Nuthatches and Downy Woodpeckers were to be seen on the giant chestnuts and oaks, and once I met a couple of Pileated Woodpeckers that were making the forest resound with their cries and their noisy tapping. Carolina Chickadees in small flocks wandered through the woods, sometimes accompanied by two or three Tufted Tits and a Nuthatch or a Creeper or two, and with them often several Golden-crowned Kinglets. The only other bird of especial interest was a solitary Raven that flew, hoarsely croaking, high overhead.

About some cornfields that occupied the scanty level stretches near the creek, and clung to the steep sides of some of the lower hills, there were some Song Sparrows and a few Field Sparrows,

Goldfinches, and one or two White-throated Sparrows. But in these fields and in the hard woods bordering them, far outnumbering all the other birds, were flocks of Juncos, and to them I devoted most of my attention, for I found that the flocks contained not only *Junco hyemalis*, which was common about Asheville, but also *J. h. carolinensis*,—a bird I had searched for there in vain. The flocks seemed to consist about equally of the two races, though it was difficult to form exact estimates as to their relative numbers, for at a distance the birds are not easy to distinguish, and they were too wild for much close inspection. The *J. hyemalis* were if anything the shyer of the two; indeed they were much wilder than I have found them in New England, even at the same season. Except in this respect I noticed nothing in the habits of *J. h. carolinensis* that differed from those of our Northern Juncos.

On my return from Patton's to Asheville I spent one afternoon, December 24, at Black Mountain Station on the Western North Carolina Railroad. It is in the valley of the Swannanoa River, bordered on the south by the Blue Ridge, on the north by the outlying spurs of the Black. I found no *Junco h. carolinensis* here, though *J. hyemalis* were plenty. No particularly interesting birds were met with here except a Robin, the only one I observed in the whole region, though I heard of others being seen. From several informants I learn that a few are seen in winter in the valleys, but they are never common at this season.

December 28 I went to Balsam Gap, some thirty miles to the west of Asheville, where I remained about a week. At this point the Ducktown branch of the Western North Carolina Railroad crosses the high range of the Balsam Mountains. The elevation of the Gap itself is about thirty-four hundred feet, while a number of the neighboring summits are over six thousand feet above the sea

About the farms and in the hard woods here I found chiefly the same species as around Asheville and at Patton's. The flocks of Juncos here, as at Patton's, contained both *J. hyemalis* and *J. h. carolinensis*, the latter apparently the more numerous. I noticed nothing new as to their habits, though I spent much time watching them. Their distribution in winter as compared with that of *J. hyemalis* is worth noting. They desert the exposed summits and the higher wind-swept slopes of the mountains, and congre-

gate in the fields and open places below, but apparently never go farther from their homes than they are compelled to. I found them abundant at the base of the Balsam Mountains, and of the Black, but in the valley of the French Broad near Asheville, I did not find one, and even at Black Mountain Station, not half a dozen miles from the foot of the Black, I looked for them in vain. *Junco hyemalis*, on the other hand, was everywhere, at the foot of the higher mountains in company with its Southern cousins, and in the lower open valleys as well.

Another bird that does not apparently stray far from its native mountains is the Winter Wren. I did not meet with it at all at Asheville, but found a few at Balsam Gap. Here it seemed to find the rhododendron thickets as attractive as brush heaps or fallen trees, and but for its fondness for them, might perhaps have seemed more common. The only specimen obtained does not differ from northern ones.

A careful examination of my series of twenty-six specimens of *Junco hyemalis carolinensis* confirms the opinion I formed in the field, that this bird, recently described* by Mr. Brewster, is at least a very distinct race. Geographical considerations, however, lead us to expect that it will not prove to be specifically distinct. My specimens in the autumn plumage differ remarkably little from Mr. Brewster's series of six spring birds which he has kindly lent me for comparison. The former are slightly paler and bluer on the back and head, and the wings and tail are a dull black with a slight plumbeous tinge instead of a brownish shade as in the spring birds. My females are not so deeply colored as the males, and their backs are tinged with brown, of which color the males have little or none. Most of the females have, too, a slight brownish tinge on the flanks. These sexual differences, however, are not great, very slight indeed compared to those of *J. hyemalis*. The color of the iris, noted in twenty-five individuals, was a warm reddish brown. The color of the bill, which I noted carefully in twenty-five fresh specimens, varies slightly in a few cases. With no well marked exception, the bill was of a light bluish horn color, the tip, and a streak over each nostril, being dark brownish. These dark markings varied in extent, and there was in some cases a slight pinkish tinge near the gonys. Roughly speaking, the bill is colored much as in *J. hyemalis*,— except

* Auk, Vol. III, p. 108.

that its general tint is bluish instead of pinkish or yellow. The feet, with little variation, were grayish brown, the toes being considerably darker than the tarsus. The average measurements in centimetres, taken from the dried skins, of fifteen males are: wing, 8.00; tail, 7.05; culmen, 1.12; tarsus, 2.17; of eight females: wing, 7.52; tail, 6.67; culmen, 1.13; tarsus, 2.12.*

A trip to the top of Jones's Knob, one of the high summits of the Balsam range (elevation, 6223 feet), December 30, gave me an opportunity to spend several hours in the heavy balsam growth that covers the higher parts of this range. There were few birds here, however; a small flock of Black-capped Chickadees and a Brown Creeper were the only ones seen. Along the lower edge of the balsams Ruffed Grouse were not uncommon, some half a dozen were flushed. Their favorite resorts are the 'old fields.' These are large open spaces high up on the mountains, which, owing doubtless to their barren soil, bear only a scattered growth of bushes and low trees, and have much the look of abandoned fields. The Grouse do not confine themselves to these places, for among the balsams, even on the summit of the mountain, I found their tracks in the snow that lies unmelted in the thick shade of these dark forests. In coloring they differ little from birds from Northeastern Virginia, and are of the extreme form of *B. umbellus* farthest removed from the northern *B. u. togata*.

Some more Black-capped Chickadees were brought me two days later, shot from a flock of about twenty in the balsams. From what I can learn I do not think they ever go out of these woods. With them I received a Hairy Woodpecker (*Dryobates villosus*) also shot in the balsams, and as it happened I shot one of the southern race (*D. villosus auduboni*) the same day in the valley below, among a hard-wood growth at an elevation of about thirty-three hundred feet.

The Black-capped Chickadees, of which I have a series of thirteen, differ but slightly from the northern representatives of the species. They average a little smaller, and show slight differences in the form of the bill, but unless there may be differences in plumage not observable at this season, they do not seem to be sufficiently unlike to warrant separation, in spite of their isolated situation.

* Average of seven specimens.

I have tried to give some idea of the characteristics of the winter fauna of the mountains, of which hitherto we have known nothing. I only regret that I was not able to investigate it more thoroughly, but I hope the time is not far distant when the region will be better known, and the results of long-continued observations, at various points and at all seasons, will give definite knowledge of its birds in the place of idle conjecture.

I add a list of the birds noted during my stay. I do not include in it some species — such as the Wild Turkey, Woodcock, and several birds of prey — of whose occurrence in winter I have satisfactory evidence, but which did not happen to come under my personal observation.

1. *Merula migratoria.*
2. *Turdus aonalaschkæ pallasi.*
3. *Sialia sialis.*
4. *Regulus satrapa.*
5. *Parus atricapillus.*
6. *Parus carolinensis.*
7. *Parus bicolor.*
8. *Sitta carolinensis.*
9. *Certhia familiaris americana.*
10. *Thryothorus ludovicianus.*
11. *Thryothorus bewicki.*
12. *Troglodytes hiemalis.*
13. *Dendroica coronata.*
14. *Spinus tristis.*
15. *Poocætes gramineus.*
16. *Zonotrichia albicollis.*
17. *Spizella pusilla.*
18. *Junco hyemalis.*
19. *Junco hyemalis carolinensis.*
20. *Melospiza fasciata.*
21. *Pipilo erythrophthalmus.*
22. *Cardinalis cardinalis.*
23. *Passer domesticus.*
24. *Sturnella magna.*
25. *Cyanocitta cristata.*
26. *Corvus corax sinuatus.*
27. *Corvus americanus.*
28 *Sayornis phœbe.*
29. *Ceophlœus pileatus.*
30. *Dryobates pubescens.*
31. *Dryobates villosus.*
32. *Dryobates villosus audubonı.*
33. *Melanerpes erythrocephalus.*
34. *Colaptes auratus.*
35. *Megascops asio.*
36. *Cathartes aura.*
37. *Zenaidura macroura.*
38. *Bonasa umbellus.*
39. *Colinus virginianus.*
40. *Aix sponsa.*

LIST OF BIRDS FOUND IN ROANE COUNTY, TENNESSEE, DURING APRIL, 1884, AND MARCH AND APRIL, 1885.*

BY WILLIAM H. FOX, M. D.

Most of the following notes were taken at Rockwood, a small mining town situated at the base of the Cumberland Ridge, and six miles from the Tennessee River. The town is on the line of the Cincinnati Southern Railroad, about 70 miles northeast of Chattanooga. The elevation of the town itself is about seven hundred feet, and that of the ridge back of it about two thousand feet. The spring of 1885 was decidedly later than that of 1884, but there was no very marked difference in the time of arrival of the migratory birds. This list does not pretend to be complete, but only gives such species as were fully identified. Mr. R. Ridgway has kindly made the nomenclature to correspond with that of the unpublished 'Check-List' of the American Ornithologists' Union.†

*1. **Turdus mustelinus.**—First seen April 19, 1884, and April 21, 1885. Rather common.

2. **Turdus ustulatus swainsoni.**—Only once seen, April 26, 1885.

*3. **Turdus aonalaschkæ pallasi.**—Rather common during March and early April. Last seen April 24, 1884, and April 15, 1885. In song March 16, 1885.

*4. **Merula migratoria.**—Abundant in large flocks during March. Common until the middle of April, 1884, but scarce after first of April, 1885. The flocks keep entirely in the woods until the last of March. Building April 7, 1884.

5. **Mimus polyglottos.**—Only once seen, April 6, 1885.

*6. **Galeoscoptes carolinensis.**—First seen April 16, 1884, and April 11, 1885. Reported April 1, 1885. Very common later in the month.

*7. **Harporhynchus rufus.**—First seen April 5, 1884, and April 7, 1885. Common after those dates.

*8. **Sialia sialis.**—Very common during the first two weeks in March; after that less so. Building March 26, 1885, and April 5, 1884.

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* [The present list is one of special importance as being the *first* pertaining to the birds of Tennessee of which I have any knowledge. With the exception of the few not marked with an asterisk (prefixed to the number), the species are verified by specimens in the National Museum collection, which have been kindly presented by Dr. Fox.—R. Ridgway.]

† [This paper, it should be stated, was received before the publication of the A. U. U. Check-List, and thus, while conforming to it in nomenclature, as explained, does not follow its arrangement.—Edd.]

*9. **Polioptila cœrulea.**—Found during the whole of April, 1884. First seen April 4, 1885. Common after that date.

*10. **Regulus calendula.**—Only once seen, April 3, 1884. In 1885, first seen March 31, and common until April 22. In song April 20, 1885.

*11. **Regulus satrapa.**—Not met with in April, 1884, but rather common in 1885. Last seen April 15.

*12. **Parus bicolor.**—Fairly common both years. Building April 16, 1884.

*13. **Parus carolinensis.**—Very common both years.

*14. **Sitta carolinensis.**—Rather common. Building March 30, 1885.

*15. **Certhia familiaris americana.**—Rather common during March and early April. Last seen April 8, 1884, and April 15, 1885.

*16. **Thryothorus ludovicianus.**—Common, especially in the village.

*17. **Thryothorus bewickii.**—Only once seen; a male shot from a fence at the side of a road, April 6, 1885.

*18. **Troglodytes hiemalis.**—Single individuals seen April 3 and 5, 1884, and March 4, 21, and 27, and April 4 and 13, 1885. The last seen was on the low lands near the Tennessee River.

*19. **Anthus pensilvanicus.**—Not seen in 1884, but common in meadows during the last two weeks in March, 1885.

*20. **Mniotilta varia.**—First seen April 6, 1884; March 31, 1885. Soon became common.

*21. **Compsothlypis americana.**—First seen April 24, 1884; April 20, 1885. Not common.

*22. **Helmitherus vermivorus.**—Not common. A male taken April 24, 1884, and another April 17, 1885. Three or four were seen April 26, 1885.

23. **Dendroica æstiva.**—First seen April 17, 1884, and April 16, 1885. Rather common on the lower lands. Building April 22, 1885.

*24. **Dendroica coronata.**—Only once seen in 1884 (April 3). First seen March 27, 1885. Common near Tennessee River until last of April.

*25. **Dendroica blackburniæ.**—First seen April 16, 1884, and April 16, 1885. Several seen later. All were males.

26. **Dendroica dominica albilora.**—Only met with twice; April 18 and 22, 1884.

*27. **Dendroica virens.**—Common during April, 1884 and 1885. First seen March 31, 1885.

*28. **Dendroica vigorsii.**—Not seen during April, 1884, nor 1885. First seen March 13, 1885, and last seen March 28, 1885. My notes for latter date say "very common in song."

*29. **Dendroica discolor.**—First seen April 16, 1884, and April 15, 1885. Common.

*30. **Seiurus aurocapillus.**—Twice seen; a female taken April 15, 1884, and one seen April 26, 1885.

31. **Seiurus motacilla.**—First seen March 21, 1885; rather common after April 1, of that year. Not met with until April 12, 1884. "Singing while on the wing" April 17, 1884.

*32. **Geothlypis formosa.**—First seen April 19, 1884. Not common in 1884, and not met with in 1885.

*33. **Geothlypis trichas.**—First seen April 17, 1884, and April 22, 1885. Rather common.

*34. **Icteria virens.**—Not seen in 1884. First seen April 23, 1885. Rather common.

*35. **Sylvania mitrata.**—First seen April 16, 1884, and April 13, 1885. Quite common in 1884, but scarce in 1885.

*36. **Setophaga ruticilla.**—First seen April 16, 1884 (males); April 24, 1884 (females), and April 15, 1885 (males). Common.

*37. **Vireo olivaceus.**—First seen April 16, 1884, and April 22, 1885. Common in 1884, but rather scarce in 1885.

*38. **Vireo flavifrons.**—First seen April 24, 1884, and April 14, 1885. Very common on April 15, 1885.

*39. **Vireo solitarius.**—Not seen in 1884, and but twice observed in 1885 (April 15 and 17).

*40. **Vireo noveboracensis.**—First seen April 15, 1884, and April 6, 1885. Very common by middle of April, 1885. In song on arrival.

*41. **Lanius ludovicianus.**—Not seen in 1884. Two females taken March 18 and 20, 1885.

42. **Progne subis.**—First seen March 30, 1885. Common in the village during April of both years.

43. **Petrochelidon lunifrons.**—Once seen on April 23, 1884. Not seen in 1885.

44. **Chelidon erythrogaster.**—First seen April 17, 1884, and April 9, 1885. Not very common.

*45. **Tachycineta bicolor.**—Not common. Seen April 1, 1884, and a few during April, 1885.

*46. **Stelgidopteryx serripennis.**—First seen April 16, 1884, and April 4, 1885. This was the commonest of the Swallows, and was abundant near the river.

*47. **Piranga erythromelas.**—Two males, April 19 and 24, 1884, and two males and one female April 26, 1885.

48. **Piranga rubra.**—One male, April 24, 1884, and another in song April 19, 1885.

*49. **Carpodacus purpureus.**—Not seen in 1884. First seen March 28, 1885; "feeding on partly opened buds of the maples." Small flocks seen afterwards.

*50. **Spinus tristis.**—Common in flocks both years. Some of the males were in full spring plumage by April 9, 1885.

*51. **Poocætes gramineus.**—Not seen in 1884. Common during March, 1885, and last seen April 17, 1885.

*52. **Ammodramus sandwichensis savanna.**—Not seen in 1884. First noted March 18, 1885. Very common on low ground.

*53. **Ammodramus savannarum passerinus.**—Twice taken, a male on March 24, and a female on April 17, 1885. No others seen.

*54. **Ammodramus henslowi.**—Twice taken, a male on March 23, and a female on April 16, 1885. No others seen.

*55. **Zonotrichia albicollis.**—Common in April, 1884. In 1885, first seen March 13. Common after that date, but most so during first two weeks in April.

*56. **Spizella pusilla.**—Very abundant in flocks until the middle of April, 1884; also during March to middle of April, 1885. Found in scattered pairs during the rest of the month.

*57. **Spizella socialis.**—Abundant in large flocks during April, 1884, and April, 1885, but not common during March, 1885.

*58. **Junco hyemalis.**—Abundant during March, 1885. Scattered flocks remained until the middle of April. Last seen April 16, 1884, and April 15, 1885.

*59. **Peucæa æstivalis bachmani.**—Twice seen during 1884. Both were males and were taken on the top of the ridge April 3 and 5. In 1885 I did not meet with this species until April 14, when two were shot in an open pine grove near the base of the ridge. Five others were afterwards taken within a radius of fifty feet. They were very difficult to flush, but when once flushed they flew directly to the lower branches of the pines and were easily shot. Only a single individual was met with away from this locality.

*60. **Melospiza georgiana.**—Not seen during 1884. In 1885, first seen March 19. Very abundant in marshy fields until the first of April, then remained common.

*61. **Melospiza fasciata.**—Only once seen, April 2, 1884. Very common during March, 1885. Not seen after April 17, 1885.

*62. **Passerella iliaca.**—Not seen during 1884. Last seen March 28, 1885. Not common.

*63. **Passer domesticus.**—Not common. A few each year in the village.

*64. **Pipilo erythrophthalmus.**—Common both years.

*65. **Cardinalis cardinalis.**—Very common both years.

66. **Passerina cyanea.**—Two males seen April 24, 1885.

*67. **Molothrus ater.**—Not seen in 1884. A few April, 1885. Not common.

*68. **Agelaius phœniceus.**—Common in flocks mixed with *Quiscali*, both years.

*69. **Sturnella magna.**—Common in flocks both years.

70. **Icterus spurius.**—A male seen April 25, and a female April 26, 1885.

71. **Icterus galbula.**—First seen April 16, 1884, and April 22, 1885. Common.

*72. **Scolecophagus carolinus.**—Two taken, and another seen April 18, 1885.

*73. **Quiscalus quiscula.***—Common, especially during April, 1885.

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*[The series of Grackles collected by Dr. Fox are of extreme interest, as showing that *Q. quiscula* is the prevailing form in Eastern Tennessee—the only portion of the country west of the Alleghanies from which I have ever seen specimens. The series obtained by Dr. Fox includes nine examples of *Q. quiscula* and two of *Q. æneus*, not one of them being intermediate between these two very strongly characterized races, if not species.—R. R.]

*74. **Quiscalus quiscula æneus.**—Out of eleven Grackles procured but two were of this variety.

75. **Corvus americanus.**—Quite common.

76. **Corvus corax sinuatus.**—Seen April 17, 1884, and March 21, 1885.

*77. **Cyanocitta cristata.**—Common both years.

*78. **Tyrannus tyrannus.**—First seen April 17, 1884, and April 17, 1885. Common.

*79. **Myiarchus crinitus.**—One taken April 24, 1884, and one taken and another seen April 15, 1885.

*80. **Sayornis phœbe.**—Very common both years. Building April 10, 1885. Nest and five eggs found April 19, 1884.

81. **Contopus virens.**—A single specimen seen April 26, 1884.

82. **Trochilus colubris.**—First seen April 19, 1884, and April 17, 1885. Common.

83. **Chætura pelagica.**—First seen April 17, 1884, and April 17, 1885. Very common.

84. **Antrostomus carolinensis?**—An individual of this genus was seen April 15, 1885. From size and color it was thought to be of this species. None were heard either year.

85. **Chordeiles virginianus.**—First seen April 26, 1884. Not seen during 1885.

*86. **Dryobates villosus audubonii.**—A few each year.

*87. **Dryobates pubescens.**—Very common.

*88. **Dryobates borealis.**—Rare. Three seen April 10, 1884, two of which, a male and female, I succeeded in shooting. It was not met with again until April 22, 1885, when I shot a solitary male, about six miles from the place where I found the former ones.

*89. **Sphyrapicus varius.**—Not very common; taken both years.

*90. **Ceophlœus pileatus.**—Not very common; taken both years.

*91. **Melanerpes carolinus.**—Not seen in 1884. Rather common in 1885, most so during April.

92. **Melanerpes erythrocephalus.**—One adult seen March 9, 1885.

*93. **Colaptes auratus.**—Very common. They kept with the flocks of Robins (*Merula migratoria*) during March and early April.

94. **Ceryle alcyon.**—Fairly common on the larger streams.

95. **Megascops asio.**—Two reported shot in the village. Not seen.

96. **Falco sparverius.**—A few seen; not common.

97. **Pandion haliaëtus carolinensis.**—One seen April 22, 1884.

98. **Cathartes aura.**—Very common.

99. **Catharista atrata.**—Several small flocks seen.

*100. **Zenaidura macroura.**—Very common. 'Cooing' April 9, 1885.

101. **Meleagris gallopavo.**—Still quite common in the mountains.

102. **Bonasa umbellus.**—Rather common in the mountains.

103. **Colinus virginianus.**—Very common.

104. **Ardea virescens.**—First seen April 18, 1884, and April 26, 1885.

105. **Nycticorax nycticorax nævius.**—One April 24, 1885.

*106. **Ægialitis vociferus.**—Not seen in 1884. In 1885 first seen March

3, and was abundant until the first of April. A single individual, April 22, 1885.

107. **Philohela minor.**—A few during March, 1885.

*108. **Gallinago delicata.**—Not seen in 1884. First seen March 6, 1885, and last seen April 7. Abundant.

*109. **Totanus solitarius.**—A few in April, 1884, and April, 1885.

110. **Actitis macularius.**—First seen April, 17, 1884, and April 15, 1885. Not common.

111. **Fulica americana.**—One found dead, April 23, 1884.

112. **Branta canadensis.**—One flock, March 3, 1885.

113. **Anas discors.**—Common in April, 1885.

114. **Aix sponsa.**—One pair, April 4, 1885.

THE BIRDS OF WESTERN MANITOBA.

BY ERNEST E. T. SETON.

(*Concluded from p. 156.*)

130. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.—Not observed by me in any part of the Assiniboine Valley, though given as "occasional at Qu'Appelle"; "specimens seen on Red Deer River, August 16, 1881," and tolerably common along the Red River.

131. **Milvulus forficatus.** SCISSOR-TAILED FLYCATCHER.—Accidental. One found by Mr. C. W. Nash at Portage la Prairie, October, 1884. (See Auk, April, 1885, p. 218.)

132. **Tyrannus tyrannus.** KINGBIRD.—Very abundant summer resident all over. Very common throughout the Winnipegoosis region. Arrives May 24; departs August 30.

133. **Myiarchus crinitus.** CRESTED FLYCATCHER.—Very rare summer resident about Winnipeg. Not taken in Assiniboine region, though I believe I have several times heard it near the Big Plain. Taken by Professor Macoun at Lake Manitoba, June 17, 1881.

134. **Sayornis phœbe.** PHŒBE. PEWEE.—A single pair reported from Winnipeg by Mr. Hine. Not examined by me.

135. **Contopus borealis.** OLIVE-SIDED FLYCATCHER.—Abundant summer resident at Duck Mountain, Big Plain, Portage la Prairie, Winnipeg; probably all over. Rare on Red Deer River and Porcupine Mountain.

136. **Contopus virens.** WOOD PEWEE.—Tolerably common summer resident, probably all over; noted at Pembina (*Coues*), Winnipeg, Portage la Prairie, Big Plain, and Duck Mountain.

137. **Contopus richardsonii.** WESTERN WOOD PEWEE.—Common summer resident, noted about Big Plain.

138. **Empidonax flaviventris.** YELLOW-BELLIED FLYCATCHER.—I found this species breeding in the Duck Mountain, June, 1884.

139. **Empidonax acadicus.** ACADIAN FLYCATCHER.—I found this species breeding in the Duck Mountain, June, 1884. It was tolerably common there, but has not been noted elsewhere.

140. **Empidonax pusillus traillii.** TRAILL'S FLYCATCHER.—Common at Pembina in the migration during the first week in June (*Coues*). Duck and Riding Mountains. "Lake Manitoba, June 17, 1881. Only one specimen procured." The species is doubtless much more widely diffused and common than these fragmentary observations would seem to indicate.

141. **Empidonax minimus.** LEAST FLYCATCHER.—Very abundant summer resident all over. Found at Lake Manitoba and Red Deer River; also very common at Manitoba House. Arrives May 20; departs late in September.

142. **Otocoris alpestris leucolæma.**—PALLID HORNED LARK.—Abundant all over. Resident excepting during December, January, and February. Breeds twice each season.

143. **Pica pica hudsonica.** AMERICAN MAGPIE.—Irregular, rare resident. Found west of Fort Ellice, and on the upper Assiniboine (*Macoun*). Resident in the woods about Lake Winnipeg (*Hine*). A single specimen reported from Brandon, in the centre of the Assiniboine region.

144. **Cyanocitta cristata.** BLUE JAY.—Tolerably common summer resident all over. Found at Red Deer and Swan Rivers. Arrives early in April; departs late in November (*W. G. A. Brodie*).

145. **Perisoreus canadensis.** CANADA JAY. WHISKEY-JACK. WIS-KA-TJAN.—Abundant resident all over. Abundant throughout Winnipegoosis region. The common name of this bird is a corruption of the Indian (Cree?) Wis-ka-tjan. This last name should not be lost sight of.

146. **Corvus corax sinuatus.** AMERICAN RAVEN.—Tolerably common winter resident on the Big Plain. Occasional at Qu'Appelle. Occasional along the boundary (*Coues*). Winter visitant about Winnipeg, and resident in the woods about Lake Winnipeg.

147. **Corvus americanus.** AMERICAN CROW.—Common summer resident all over. Found at Lake Winnipeg (*Bell*), Cross Lake (*Kennicott*). Arrives April 1; departs November 1.

148. **Dolichonyx oryzivorus albinucha.** BOBOLINK.—Abundant summer resident all over. Pembina specimens (*Coues*) and Carberry specimens apparently are of the white-naped variety *albinucha;* therefore I assume this to be the form throughout. Arrives May 20; departs September 7.

149. **Molothrus ater.** COWBIRD.—Very abundant summer resident all over. Arrives May 15; departs late in the fall, but disappears for a time during the moult at the end of August. They are then to be found, I believe, in the sloughs and marshes with the Grackles.

150. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.—Common in Assiniboine Valley. Very abundant in Red River Valley. Summer resident. Arrives May 1; departs late in October.

151. **Agelaius phœniceus.** RED-WINGED BLACKBIRD.—Very abundant summer resident all over. Arrives April 20; departs late in October.

152. **Sturnella magna neglecta.** WESTERN MEADOW LARK.—Abundant summer resident all over. Arrives April 15; departs October 15.

153. **Icterus spurius.** ORCHARD ORIOLE.—One specimen taken at Pembina, early in June, 1873, by Dr. Coues.

154. **Icterus galbula.** BALTIMORE ORIOLE.—Abundant summer resident in Red River Valley, Big Plain, and upper Assiniboine. "Very common in woods along Lake Manitoba." Arrives May 30; departs August 30.

155. **Scolecophagus carolinus.** RUSTY BLACKBIRD.—Enormously abundant migrant all over. Breeds commonly about Big Plain and Winnipeg. Builds on the ground a nest of hair and fibres much like that of a Savanna Sparrow on a large scale, and not necessarily near the water. "Very abundant on the Swan River in September, 1881." Arrives April 15; departs November 1.

156. **Scolecophagus cyanocephalus.** BREWER'S BLACKBIRD. SATIN BIRD.—Abundant summer resident all over. Arrives April 15; builds a nest of straw and mud, on a log or in the bushes close by or in the water. Departs November 1.

157. **Quiscalus quiscula æneus.** BRONZED GRACKLE.—Abundant summer resident all over. Arrives April 20; departs October 15.

158. **Coccothraustes vespertina.** EVENING GROSBEAK.—Common winter visitant in the vicinities of Winnipeg, Portage la Prairie, and Qu'Appelle. Big Island in Lake Winnipeg and Selkirk (*R. H. Hunter*).

159. **Pinicola enucleator.** PINE GROSBEAK—Abundant winter visitant in Red River Valley, about the Big Plain, and at Qu'Appelle; probably all over. Found by Professor Macoun at Red Deer Lake, July, 1881. Probably breeding in the Winnipegoosis region.

160. **Carpodacus purpureus.** PURPLE FINCH.—Abundant summer resident in Red River Valley. Noted as common on the Big Plain in migration only, but probably breeding all over, as it is given by Dr. Coues as found "in small numbers on Turtle Mountain during the latter part of July. It doubtless breeds in this locality." It was found by Professor Macoun at Swan Lake House, July 11, 1881. Arrives early in May; departs middle of September.

161. **Loxia curvirostra minor.** AMERICAN CROSSBILL.—Common as a winter visitant at Winnipeg, Portage la Prairie, and Big Plain. Possibly breeding, as it is known to do so in Minnesota (*Trippe*).

162. **Loxia leucoptera.** WHITE-WINGED CROSSBILL.—Common winter visitant about Winnipeg and Big Plain.

163. **Acanthis hornemannii exilipes.** HOARY REDPOLL.—A tolerably common fall visitant on the Big Plain, accompanying *A. linaria.*

164. **Acanthis linaria.** REDPOLL.—Abundant fall and winter visitant along Red River, and all along the Assiniboine River.

165. **Spinus tristis.** AMERICAN GOLDFINCH. WILD CANARY.—Common summer resident in Red River Valley, and all along the Assiniboine

River. Probably all over. Arrives last week of May; departs middle of September.

166. **Spinus pinus.** PINE SISKIN.—An irregular spring and fall visitant on the Big Plain. "During June it is found along the Red River in hundreds."

167. **Plectrophenax nivalis.** SNOWFLAKE. SNOW BUNTING.—Very abundant spring, fall, and winter resident, on Big Plain, at Portage la Prairie, and along Red River; doubtless all over.

168. **Calcarius lapponicus.** LAPLAND LONGSPUR.—Very abundant spring and fall migrant on Big Plain, Souris Plain, and along Red River near Winnipeg. Arrives May 15, and again September 20.

169. **Calcarius pictus.** SMITH'S LONGSPUR. PAINTED LONGSPUR.—Abundant spring, but rare fall migrant on Big Plain and at Winnipeg. Fall migrant on Souris (*Coues*). Arrives on May 10; and again September 15.

170. **Calcarius ornatus.** CHESTNUT-COLLARED LONGSPUR.—Common summer resident all over. Local in distribution, many pairs sometimes affecting a limited area of dry prairie, while again for miles no more of the species are to be seen. Arrives May 16; departs August 30.

171. **Poocætes gramineus confinis.** WESTERN VESPER SPARROW. BAYWING. Very abundant summer resident all over. Arrives May 1; departs September 30.

172. **Ammodramus sandwichensis alaudinus.** WESTERN SAVANNA SPARROW.—Abundant summer resident all over. Red Deer River and Manitoba House. Arrives May 1; departs September 30.

173. **Ammodramus bairdii.** BAIRD'S SPARROW.—Abundant summer resident throughout the Assiniboine Valley, wherever there are alkaline flats.

174. **Ammodramus lecontei.** LECONTE'S SPARROW.—Abundant summer resident throughout the Assiniboine Valley. Arrives May 1; departs September 30. Nest found June 26, 1882. (See Auk, January, 1885, p. 24.)

175. **Chondestes grammacus.** LARK SPARROW.—Very rare summer resident. Noted only in the vicinity of Winnipeg.

176. **Zonotrichia querula.** HARRIS'S SPARROW.—Abundant spring and fall migrant on Souris, Big Plain, and along Red River. Arrives May 15; and again September 20.

177. **Zonotrichia leucophrys.** WHITE-CROWNED SPARROW.—Rare migrant on Big Plain.

178. **Zonotrichia intermedia.** INTERMEDIATE SPARROW.—Abundant on the Souris in fall migration (*Coues*).

179. **Zonotrichia albicollis.** WHITE-THROATED SPARROW.—Abundant summer resident all along the Assiniboine River from Duck Mountain to Winnipeg, also along Red River. Very common around Lake Manitoba. Arrives early in May; departs late in October.

180. **Spizella monticola.** TREE SPARROW. Abundant migrant. Noted on Souris (*Coues*), Big Plain, Portage la Prairie, and Winnipeg.

181. **Spizella socialis.** CHIPPING SPARROW.—Very rare summer resi-

dent. Noted on Big Plain, and at Portage la Prairie. Arrives in April (*W. G. A. Brodie*).

182. **Spizella pallida**. CLAY-COLORED SPARROW.—Very abundant summer resident all over. Lake Manitoba and northward. Arrives May 15; departs October 15.

183. **Spizella pusilla**. FIELD SPARROW.—Found breeding at Red River Settlement (*D. Gunn*). Observed in Red River Valley (*R. H. Hunter*).

184. **Junco hyemalis**. SLATE-COLORED JUNCO.—Abundant migrant all over. Probably breeding in the Winnipegoosis region, as it breeds in Minnesota (*Trippe*). Red Deer River.

185. **Junco hyemalis oregonus**. OREGON JUNCO.—In addition to the preceding is a form that is more nearly *oregonus* than typical *hyemalis*. It accompanies *hyemalis* in the migrations.

186. **Melospiza fasciata**. SONG SPARROW.—Summer resident all over. Not common. Found at Lake Manitoba and at Norway House. Arrives late in April; departs early in October.

187. **Melospiza lincolni**. LINCOLN'S SPARROW.—Abundant fall migrant on Souris (*Coues*). Rare migrant on Big Plain. Noted during first week of May and first week of September.

188. **Melospiza georgiana**. SWAMP SPARROW.—Common summer resident all over. Arrives early in May; departs in October.

189. **Passerella iliaca**. FOX SPARROW. Common migrant on Big Plain, at Portage la Prairie, and along Red River near Winnipeg. Breeding abundantly on Duck Mountain.

190. **Pipilo erythropthalmus**. TOWHEE.—Common summer resident on Big Plain and along Red River. "Not uncommon about Pembina" (*Coues*). Arrives May 20; departs August 30.

191. **Pipilo maculatus arcticus**. ARCTIC TOWHEE.—Found by Dr. Coues on the Souris near the Boundary.

192. **Habia ludoviciana**. ROSE-BREASTED GROSBEAK.—Tolerably common summer resident on Big Plain, and along Red River near Winnipeg. "Abundant at Pembina (*Coues*). At Lake Manitoba and Red River." Arrives late in May.

193. **Calamospiza melanocorys**. LARK BUNTING. BUFFALO BIRD.—Souris Plain, and west to Cypress Hills (*Macoun*).

194. **Piranga erythromelas**. SCARLET TANAGER.—Mr. R. H. Hunter writes me that in June, 1880, while camping east of Winnipeg, he observed a pair, evidently nesting, and adds that his companion, Mr. Clementi-Smith, has "seen several pairs on the shores of Lake Winnipeg." "Lake Winnipeg" (*Ridgway*). Rare at Qu'Appelle.

195. **Progne subis**. PURPLE MARTIN.—Tolerably common summer resident. Noted at Pembina River (*Seton*), Turtle Mountain (*Coues*), Big Plain, Portage la Prairie, and along Red River and Lake Manitoba. Arrives early in May; departs late in August.

196. **Petrochelidon lunifrons**. CLIFF SWALLOW.—Very abundant summer resident all over. Arrives May 15; departs August 30.

197. **Chelidon erythrogaster.** BARN SWALLOW.—Tolerably common summer resident. Noted on Souris River (*Coues*), on Big Plain at Portage la Prairie, and along Red River. Arrives in the first week of May.

198. **Tachycineta bicolor.** TREE SWALLOW.—Abundant summer resident. Noted at Pembina (*Coues*), Turtle Mountain, Big Plain, Riding Mountain, Portage la Prairie, and along Red River. Arrives May 5; departs August 25.

199. **Clivicola riparia.** BANK SWALLOW. SAND MARTIN.—Common summer resident all over.

200. **Ampelis garrulus.** BOHEMIAN WAX-WING.—A regular and abundant winter visitant in the vicinity of Winnipeg.

201. **Ampelis cedrorum.** CEDAR WAX-WING. CHERRY BIRD.—Abundant summer resident all over. Arrives early in June. Winnipeg River (*Kennicott*).

202. **Lanius borealis.** NORTHERN SHRIKE.—Tolerably common spring and fall visitant on the Big Plain and in the vicinity of Winnipeg. Arrives April 7 (*W. G. A. Brodie*).

203. **Lanius ludovicianus excubitoroides.** WHITE-RUMPED SHRIKE.—Abundant summer resident all over. Arrives early in May; departs late in September.

204. **Vireo olivaceus.** RED-EYED VIREO.—Abundant summer resident; noted all over excepting in the Souris region. At Lake Winnipeg abundant (*Brewer*). Very abundant about Lake Manitoba. Arrives May 24; departs late in August.

205. **Vireo philadelphicus.** PHILADELPHIA VIREO.—Found the nest and eggs near Fort Pelly (northwest of Duck Mountain), June 9, 1884. (See Auk, July, 1885, pp. 305, 306.) "Quite common" along the Red River near the Boundary (*Coues*).

206. **Vireo gilvus.** WARBLING VIREO.—Abundant summer resident all along the Red and Assiniboine Rivers. Noted also on Riding and Duck Mountains. Selkirk (*Brewer*). Arrives May 30.

207. **Vireo flavifrons.** YELLOW-THROATED VIREO.—Summer resident along Red River, and taken by Mr. R. M. Christy west of Manitoba, but not recorded from any other point.

208. **Vireo solitarius.** BLUE-HEADED VIREO.—Tolerably common summer resident. Noted at Turtle Mountain, Big Plain, Duck Mountain, and along Red River. At Pembina (*Coues*). Arrives about May 15.

209. **Mniotilta varia.** BLACK-AND-WHITE WARBLER.—Abundant summer resident. Noted at Duck Mountain, Riding Mountain, Big Plain, Portage la Prairie, and along Red River. At Pembina (*Coues*). Water Hen River.

210. **Helminthophila ruficapilla.** NASHVILLE WARBLER. Rather rare summer resident. Noted on Duck Mountain and along Red River.

211. **Helminthophila celata.** ORANGE-CROWNED WARBLER. Abundant summer resident on Big Plain and Riding Mountain, and along Red River. Abundant fall migrant on Souris (*Coues*). Arrives May 12.

212. **Helminthophila peregrina.** TENNESSEE WARBLER.—Rare sum-

mer resident. Noted on Big Plain and Duck Mountain, and along Red River near Winnipeg. At Pembina common in the spring migration (*Coues*). North shore of Lake Winnipeg (*Kennicott*).

213. **Dendroica tigrina**. CAPE MAY WARBLER. — "Plentiful" along Red River. "North to Lake Winnipeg and Moose Factory" (*Ridgway*).

214. **Dendroica æstiva**. YELLOW WARBLER. SPIDER BIRD. — Very abundant summer resident all over. "Very common in the wooded country of the N. W. Territory" (*Macoun*). Arrives May 24; departs September 7.

215. **Dendroica coronata**. MYRTLE WARBLER. — Abundant migrant. Noted on the Souris (*Coues*), on Big Plain, at Portage la Prairie, and along Red River. Lake Manitoba. Arrives May 5; departs September 12.

216. **Dendroica maculosa**. MAGNOLIA WARBLER.—On Big Plain noted only as a rare migrant. Common along Red River. "Found at Duck Bay, Lake Winnipegoosis."

217. **Dendroica pensylvanica**. CHESTNUT-SIDED WARBLER.—Abundant summer resident. On Duck and Riding Mountains, on the Big Plain, at Portage la Prairie, and along Red River. Arrives early in June.

218. **Dendroica castanea**. BAY-BREASTED WARBLER. — "Common along Red River." Not noted elsewhere.

219. **Dendroica striata**. BLACK-POLL WARBLER.—A rare migrant on the Big Plain. Abundant migrant along Red River.

220. **Dendroica blackburniæ**. BLACKBURNIAN WARBLER. — A rare migrant on the Big Plain and along Red River. Apparently breeding in the Winnipegoosis region. "Swan Lake and Porcupine Mountain."

221. **Dendroica vigorsii**. PINE WARBLER.—"Duck Bay, Lake Winnipegoosis." Breeding, I suppose.

222. **Dendroica palmarum**. PALM WARBLER.—Abundant as a migrant on Big Plain, at Portage la Prairie, and along Red River. Passes about the first week of May, and again about September 15.

223. **Seiurus aurocapillus**. OVENBIRD.—Common summer resident on Big Plain, at Portage la Prarie, and along Red River. "Abundant around Lake Manitoba." Arrives late in May.

224. **Seiurus noveboracensis**. WATER-THRUSH. — Common summer resident on Big Plain and along Red River. Around Lakes of the N. W. Territory (*Macoun*).

225. **Geothlypis agilis**. CONNECTICUT WARBLER.—Tolerably common summer resident. Noted on Duck Mountain, Big Plain, and along Red River. Nest found June 21, 1883. (See Auk, April, 1884, pp. 192, 193.)

226. **Geothlypis philadelphia**. MOURNING WARBLER—Common summer resident on Big Plain and in Red River Valley. "Very abundant at Water Hen River and Swan Lake."

227. **Geothlypis trichas occidentalis**. WESTERN MARYLAND YELLOW-THROAT.—Abundant summer resident all over. "At Water Hen River."

228. **Sylvania pusilla**. WILSON'S WARBLER.—Observed in May on the Turtle Mountain. Rather common along Red River.

229. **Sylvania canadensis**. CANADIAN WARBLER.—Doubtless breed-

ing; though noted as a rare migrant only on the Big Plain. Common along Red River. "At the head of Lake Winnipegoosis." Winnipeg River in June (*Kennicott*).

230. **Setophaga ruticilla.** AMERICAN REDSTART.—Common summer resident all over. "Very abundant around Lake Manitoba, Winnipeg River (*Kennicott*)." Arrives early in May.

231. **Anthus pensilvanicus.** AMERICAN PIPIT.—Abundant spring and fall migrant on Big Plain, at Portage la Prairie, on the Souris (*Coues*), and along Red River.

232. **Anthus spragueii.** SPRAGUE'S PIPIT. MISSOURI SKYLARK.—Abundant summer resident of Assiniboine region only. Arrives May 1; departs September 1.

233. **Galeoscoptes carolinensis.** CATBIRD.—Abundant summer resident all over. Lake Winnipeg (*Brewer*). Arrives May 20; departs early in September.

234. **Harporhynchus rufus.** BROWN THRASHER.—Common summer resident throughout Red River Valley, on the Big Plain, and Riding Mountain. At Swan River. Arrives May 20; departs September 7.

235. **Troglodytes aëdon parkmanii.** WESTERN HOUSE WREN.—Abundant summer resident all over. Arrives May 20; departs about the end of September.

236. **Troglodytes hiemalis.** WINTER WREN.—Mr. R. H. Hunter writes me that this species is a common summer resident east of Winnipeg.

237. **Cistothorus stellaris.** SHORT-BILLED MARSH WREN.—Abundant summer resident all over. Near Fort Pelly (*Seton*). At Water Hen River. Arrives May 15; departs September 15.

238. **Cistothorus palustris.** LONG-BILLED MARSH WREN. Rare summer resident. Noted at Winnipeg, and at Water Hen River. Not found yet in Assiniboine region. Apparently of extensive though erratic distribution, as it was found by Richardson on the Saskatchewan.

239. **Certhia familiaris americana.** BROWN CREEPER.—Red River settlement (*Ridgway*).

240. **Sitta carolinensis aculeata.** SLENDER-BILLED NUTHATCH.—Rather rare summer resident. Noted on Big Plain (*W. G. A. Brodie*), at Portage la Prairie, and along Red River. Latest noted October 27, 1884.

241. **Sitta canadensis.** RED-BREASTED NUTHATCH.—Very rare summer resident. Once seen on Big Plain; once taken near Winnipeg by Mr. Hine. Occurs at Lake Winnipeg (*Ridgway*).

242. **Parus atricapillus septentrionalis.** LONG-TAILED CHICKADEE.—Resident; abundant all over. Very common in Northwest Territory (*Macoun*). Lake Winnipeg (*Kennicott*), Winnipeg River (*B. Ross*). The Manitoba bird is not strictly *septentrionalis*, but is nearer to that form than to *atricapillus*.

243. **Parus hudsonicus.** HUDSONIAN CHICKADEE.—The only record is as follows: "In flocks around the Porcupine Mountains" (*Macoun*). The bird is certainly not found in the Assiniboine region, and there are no Red River records, though it should be the prevailing species in the Winnipeg Basin.

244. **Regulus satrapa.** GOLDEN-CROWNED KINGLET.—Rare migrant. Noted only at Carberry, November 5, 1884.

245. **Regulus calendula.** RUBY-CROWNED KINGLET.—Tolerably common migrant. Noted on Big Plain about May 15; on Souris in September (*Coues*). Along Red River and at Portage la Prairie.

246. **Turdus fuscescens.** WILSON'S THRUSH. VEERY.—Abundant summer resident all over. "Lake Manitoba and westward; abundant." Arrives May 24; departs late in August.

246 *a*. **Turdus fuscescens salicicolus.** WILLOW THRUSH.—Taken on the Souris at the Boundary, in the fall migration, September 16, by Dr. Coues. Recorded as *Turdus swainsoni*.

247. **Turdus aliciæ.** GRAY-CHEEKED THRUSH.—Common migrant on the Big Plain. Imperfectly observed, as it is not distinguished by ordinary observers.

248. **Turdus ustulatus swainsoni.** OLIVE-BACKED THRUSH.—Tolerably common summer resident. Noted on Turtle Mountain, Duck Mountain, and Big Plain. Found along Red River at Portage la Prairie. Swan River, and north to Carleton House. Arrives May 12.

249. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH.—Common summer resident. Noted at Turtle Mountain, Big Plain, Portage la Prairie, and along the Red River. "Lake Manitoba and west to Fort Pelly." Arrives May 1.

250. **Merula migratoria.** AMERICAN ROBIN.—Abundant summer resident all over, throughout the Winnipegoosis region, Norway House. Arrives April 15; departs October 15 (*W. G. A. Brodie*).

251. **Sialia sialis.** BLUEBIRD.—Rare summer resident. Most common in the region about Winnipeg. Lake Winnipeg (*Ridgway*). At Portage la Prairie a few pairs are seen each summer (*Nash*). Not noted west of this point.

The following species are added on the authority of Mr. R. H. Hunter of Ottawa. The list was received too late for insertion in due order.

252. **Anas cyanoptera.** CINNAMON TEAL.—"I have taken the Cinnamon Teal at Oak Lake, and I think also at Lake Manitoba, but during fifteen years' residence in Manitoba I have seen only five or six specimens."

253. **Glaucionetta islandica.** BARROW'S GOLDEN-EYE.—"I shot a brace at Lake Manitoba in 1879, and a drake at Shoal Lake in the spring of the following year. And I saw a drake which was killed at the mouth of the Red River."

254. **Recurvirostra americana.** AMERICAN AVOCET.—"Have killed the bird along the Souris, southwest of Plum Creek." In the Museum of the Geological survey at Ottawa is "a specimen of the Avocet, marked 'from Manitoba.'"

255. **Buteo lineatus.** RED-SHOULDERED HAWK.—"Rather common in the eastern part of the Province."

256. **Elanoides forficatus.** SWALLOW-TAILED KITE.—"Noticed at Selkirk, Pembina Mountain, and Fort Qu'Appelle."

257. **Picoides americanus.** AMERICAN THREE-TOED WOODPECKER.—"I have taken the bird on the Broken-head River; also on the Winnipeg."

I have also received much assistance and corroborative evidence from the notes of my late friend Wm. G. A. Brodie, who was drowned while pursuing his studies on the upper Assiniboine in 1883. Also from the observations of my friend Mr. R. M. Christy, whose field notes have already appeared in the 'Zoologist.'

ADDENDA.—Professor Bell writes me that Long Lake and Pic River, mentioned under No. 89, *Pediocætes*, are near Lake Superior, not Lake Winnipeg; and adds that the species "used to be quite common at Thunder Bay. . . . I understand from the Hudson's Bay Company's officers that this bird comes almost or quite to the Bay all along the southwest side." In this latter case the bird will probably be the true *Pediocætes phasianellus*.

Mr. C. W. Nash writes, from Portage la Prairie, as follows: "I never shot but one Ruddy Duck (*Erismatura rubida*) here, and that was on September 10, 1884. I never found it breeding at Shoal Lake." [For '*Nash*' on fourth line of number 38, read '*Hine*.'—E. E. T. S.]

Willow Ptarmigan (*Lagopus lagopus*). "This bird is a very common winter visitor to the shores of Lake Manitoba, even to the southern end, from whence I have received many specimens each year, generally in January and February."

Prairie Hen or Pinnated Grouse (*Tympanuchus americanus*). "The first I heard of was shot here in 1883; since then they have gradually increased and are now quite common."

Mourning Dove (*Zenaidura macroura*). "Very common here; breeds in low bushes, frequently selecting the wild plum."

Bald Eagle (*Haliaëtus leucocephalus*). "Reported to be frequently seen on Lake Manitoba.'"

Osprey (*Pandion haliaëtus carolinensis*). "I saw one last spring, over the Assiniboine River."

Mr. R. H. Hunter sends the following comments on the first part of this list:—

"I have seen the Wood Duck (*Aix sponsa*) at Westbourne, and it is always to be found along Cook's Creek, east of Winnipeg.

"I cannot concur that the Big Blue-bill (*Aythya marila nearctica*) commonly breeds in Manitoba.

"I have taken the Brant (*Branta bernicla*) at Shoal Lake.

"I have never seen the Knot (*Tringa canutus*) along Red River, but have seen large flocks of the species west of Brandon.

"The Prairie Hen (*Tympanuchus americanus*) has since appeared at Westbourne.

"The Long-eared Owl (*Asio wilsonianus*), the Short-eared Owl (*Asio acciptrinus*), and the Barred Owl (*Syrnium nebulosum*) have all been seen in the wooded country east of Winnipeg, during February.

"I am positive that the Hawk Owl (*Surnia ulula caparoch*) is a permanent resident and breeds in the wooded country east of the Red River."

ON THE GLAUCOUS GULL OF BERING'S SEA AND CONTIGUOUS WATERS.

BY ROBERT RIDGWAY.

THE National Museum having accumulated a considerable series of specimens of *Larus glaucus* from various North Atlantic localities, and also an equal number of what appeared to be the same species from the shores of Alaska and adjacent waters, certain very obvious differences between specimens from the two regions attracted attention, and eventually led to a careful comparison. The result is that the so-called *L. glaucus* from Alaska, etc., proves to be a quite distinct and easily recognized species, which seems to have been hitherto unnamed. I therefore propose to name and characterize it as follows:—

Larus barrovianus, sp. nov.

SP. CHAR.—In plumage resembling *L. glaucus* and *L. leucopterus*, and in size intermediate between these two species; very different from the former, however, in shape of the bill, which has the depth through the angle never less, and usually decidedly greater, than through the base, instead of exactly the reverse; mantle averaging somewhat darker than in *glaucus*, with an obvious or tolerably abrupt line of demarkation between the white tips to the primaries and the pearl-blue of their basal portion.

Males (four specimens): Wing, 17.00-18.00 (average, 17.44); tail, 7.30-7.50 (7.45); culmen, 2.00-2.30 (2.19); depth of bill through angle, .80-.85 (.82); through base, .75-.80 (.79); tarsus, 2.55-2.78 (2.64); middle toe (with claw), 2.53-2.75 (2.64).

Females (four specimens): Wing, 16.25-17.25 (16.81); tail, 7.00-7.20 (7.11); culmen, 1.88-2.05 (1.98); depth of bill through angle, .72-.80 (.75); through base, .70-.75 (.72); tarsus, 2.40-2.50 (2.45); middle toe (with claw), 2.35-2.50 (2.42).

HABITAT. Bering's Sea and contiguous waters, northeastward to Point Barrow, southwestward to Japan (in winter). (Type, No. 88,913, U. S. Nat. Mus., ♂ ad., Point Barrow, Alaska, August 4, 1882; Middleton Smith, collector.)

The specimens measured above are all adults, and are from the two localities of St. Michaels and Point Barrow. An equal number of adults of *L. glaucus* (only two examples having the sex determined, however), measure as follows:

Males (presumed, or ascertained; six specimens): Wing, 17.60-18.75 (18.20); tail, 7.70-8.50 (8.12); culmen, 2.42-2.70 (2.56); depth of bill at angle, .86-.95 (.91), at base, .90-1.00 (.95); tarsus, 2.60-3.05 (2.91); middle toe (with claw) 2.75-3.00 (2.89).

Females (presumed and ascertained; two specimens): Wing, 16.75-18.00 (17.37); tail, 7.40-8.40 (7.90); culmen, 2.30-2.35 (2.32); depth of bill through angle, .80; at base, .83-.88 (.85); tarsus, 2.60-2.72 (2.66); middle toe (with claw) 2.68-2.75 (2.71).

There is apparently no difference in plumage between the two species in the immature plumages, of which the National Museum collection possesses a good series in all stages; but they may be very readily distinguished by the size and shape of the bill, as pointed out above.

DESCRIPTION OF A NEW SPECIES OF OYSTER-CATCHER FROM THE GALAPAGOS ISLANDS.

BY ROBERT RIDGWAY.

Hæmatopus galapagensis, sp. nov.

SP. CHAR.—Somewhat similar to *H. palliatus* Temm., but differing as follows: Back, scapulars, and wings sooty black (as in *H. leucopus* Garn.), instead of grayish brown; shorter upper tail-coverts entirely black, and the longer ones barred or spotted with black at ends; under primary-coverts chiefly black; white of greater wing-coverts and secondaries much more restricted. Wing, 10.00; tail, 3.80-3.90; culmen, 3.12-3.42; depth of bill at thickest portion anterior to nostril, .50; tarsus, 2.12-2.20; middle toe, 1.65. (Type, No. 101,319, U. S. Nat. Mus.)

HABITAT. Chatham Island, Galapagos. (Three specimens, collected by Dr. Wm. H. Jones, U. S. N., Surgeon U. S. S. 'Wachusett.')

PRELIMINARY DESCRIPTIONS OF SOME NEW SPECIES OF BIRDS FROM SOUTHERN MEXICO, IN THE COLLECTION OF THE MEXICAN GEOGRAPHICAL AND EXPLORING COMMISSION.

BY ROBERT RIDGWAY.

PUBLICATION of the annotated catalogue* of the beautiful and unique collection of birds made by the naturalists of the Mexican

*To be published in Vol IX, 'Proceedings' of the U.S. National Museum, with full descriptions and appropriate critical remarks. The author is indebted to the Director of the National Museum, for his kind permission to publish in advance these condensed diagnoses.

Geographical and Exploring Commission (Mr. Augustin Diaz, C. E., Director), having been unavoidably delayed, and there being no present prospect of its early appearance, the following brief diagnoses of the new species described therein are herewith presented. For the privilege of describing and naming these interesting new species, I am indebted to the courtesy of Mr. Fernando Ferrari-Perez, C. E., Chief of the Natural History Section of the Commission.

The type-specimens are all in the collection made by the Commission, and now in the National Museum of Mexico.

1. **Amphispiza ferrariperezi**, sp. nov.

SP. CHAR.—Similar to *A. quinquestriata* (Scl.), but rump brown instead of slate-gray, lesser wing-coverts cinnamon-rufous instead of slate-color, throat with a broad patch instead of stripe of white, black of breast forming a broad collar widest laterally, and sides light brown instead of plumbeous. *Male:* Wing, 2.70; tail, 3.30; culmen, .50; tarsus, .85; middle toe, .60. *Female:* Wing, 2.50, tail, 3.00.

HABITAT. Chietla, State of Puebla, Mexico.

2. **Pipilo submaculatus**, sp. nov.

SP. CHAR.—Resembling *P. maculatus* Swains., but the back without white streaks, the white terminal spots of middle and greater wing-coverts and lateral rectrices much reduced in size, and the rufous of the sides of the breast marked with sagittate spots of black. Wing (adult male), 3.30; tail, 3.70; culmen, .60; tarsus, 1.15; middle toe, .75.

HABITAT. Tezuitlan, State of Puebla.

3. **Pipilo complexus**, sp. nov.

SP. CHAR.—Similar to *P. macronyx* Swains., but decidedly smaller, the sides much paler rufous (almost buff), the throat with a white patch, and the occiput with a rufous patch. Wing (adult male), 3.60; tail, 3.90; culmen, .62; tarsus, 1.15; middle toe, .70.

HABITAT. Tezuitlan, State of Puebla.

4. **Anas diazi**, sp. nov.

SP. CHAR.—Most like *A. fulvigula*, nobis, but last row of wing-coverts with a distinct subterminal band of white, and secondaries with a broad terminal bar of the same; general color much less fulvous; cheeks streaked with dusky, and lower basal angle of upper mandible without black spot. *Male:* Wing, 10.00; tail, 4.00; culmen, 2.05; width of bill near end, .90; tarsus, 1.60; middle toe 1.95. *Female (immature):* Wing, 8.90; tail, 3.80; culmen, 1.85; width of bill near end, .75.

HABITAT. Laguna del Rosario, Tlaxcala, and San Ysidro, Puebla.

5. **Philortyx personatus**, sp. nov.

SP. CHAR.—Differing from *P. fasciatus* Gould, in having the forehead, cheeks, and throat uniform black, instead of having these parts brown and white, respectively; bill light brown, instead of black (possibly darker in fully adult). Wing, 3.80; tail, 2.00; culmen, .42; tarsus, 1.00; middle toe, .92.

HABITAT. Chietla, State of Puebla.

DESCRIPTIONS OF TWO NEW SPECIES OF BIRDS SUPPOSED TO BE FROM THE INTERIOR OF VENEZUELA.

BY ROBERT RIDGWAY.

1. **Pyroderus masoni**, sp. nov.

SP. CHAR.—Most like *P. orenocensis* Lafr., but plumage much darker beneath, the throat and jugulum nearly uniform dark brownish red, the breast and abdomen dark brownish chestnut. (Type, No. 106,051, U. S. Nat. Mus.)

Dedicated to Professor Otis T. Mason, Curator of the Department of Ethnology, United States National Museum.

2. **Aulacorhamphus dimidiatus**, sp. nov.

SP. CHAR.—Similar to *A. atrogularis* (Sturm.), but with the bill very much shorter (culmen, 2.20-2.25), the gonys very little longer than the ramus of the lower mandible, instead of nearly twice as long, and the black stripe along edge of upper mandible much broader. (Type, No. 106,052, U. S. Nat. Mus.)

DESCRIPTION OF A NEW SPECIES OF ELF OWL FROM SOCORRO ISLAND, WESTERN MEXICO.

BY ROBERT RIDGWAY.

Micrathene graysoni, sp. nov.

SP. CHAR.—Similar to *M. whitneyi* (Cooper), but much browner, the plumage entirely without any superficial gray, and the light rusty tail-

bands nearly as broad as the brown interspaces. *Male:* Wing, 4.25; tail, 2.20; culmen, .35; tarsus, .75. *Female:* Wing, 4.05; tail, 1.90; culmen, .35; tarsus, .70. (Types, Nos. 49,678, "♂," and 50,765, "♀," U. S. Nat. Mus., Socorro I.; Col. A. J. Grayson, collector.)

DESCRIPTION OF A NEW GENUS OF OCEANITIDÆ.

BY ROBERT RIDGWAY.

Pealea, gen. nov.

CHAR.—Similar to *Oceanites* Keys. & Blas., but claws very broad, flat, and blunt (as in *Pelagodroma* Reich.), the tarsus exceeding the middle toe with claw by the length of the culmen (to nasal tube), and the first quill equal to or longer than the third.

Type, *Thalassidroma lineata* Peale.

The type-species is colored above much like *Oceanites oceanicus*, but very differently beneath, the belly and flanks being white marked with wedge-shaped stripes of dusky. Some of the under wing-coverts are likewise white, as is also the basal portion of the rectrices. The webs of the feet are wholly dusky. The tarsi are booted, as in *Oceanites*.

The genus is named in honor of Mr. Titian R. Peale, the very accomplished naturalist of the United States Exploring Expedition under Commodore Wilkes.

DESCRIPTION OF FOUR NEW SPECIES OF BIRDS FROM THE BAHAMA ISLANDS.*

BY ROBERT RIDGWAY.

1. **Geothlypis coryi**, sp. nov.

SP. CHAR.—In plumage much resembling *G. beldingi*, nobis (from Lower California), but yellow of lower parts with less of an orange tint, the sides and upper parts without any olive-brown tinge, the flanks bright greenish yellow, and the yellow posterior border to the black 'mask' much narrower, and less purely yellow. Form very different, the bill about twice as large, and of different shape. *Female* very different from that of any other known species, being bright olive-green above and entirely pure

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gamboge-yellow below; with ashy auriculars and yellowish forehead and superciliary stripe.

Adult male (type No. 107,876, U. S. Nat. Mus., Eleuthera I., Bahamas, March 12, 1886; Chas. H. Townsend): Above bright olive-green, very slightly tinged with ashy on top of head; lower parts, including flanks, entirely rich gamboge-yellow; forehead (back to about .35 from nostril), lores, orbital region, malar region, and auriculars, uniform deep black, bordered posteriorly by gamboge-yellow (less distinct across crown); bill blackish, paler along tomia, and at base of lower mandible; legs and feet light brown; wing, 2.60; tail, 2.50; culmen, .75; bill from nostril, 45; depth of bill at base, .20; width, .20; tarsus, 90.

Adult female (No. 107,875, U. S. Nat. Mus., same locality and date; J. E. Benedict): Similar to the male, except in color of the head, which lacks entirely any black, the forehead, cheeks, and superciliary region being olive-yellowish, lores grayish, and auriculars ashy; flanks and under tail-coverts rather paler and more olivaceous-yellow than in the male. Wing, 2.45; tail, 2.50; culmen, .75; bill from nostril, .45, depth at base, .20, width, .18; tarsus, .87.

This species is much more strongly marked than *G. rostratus* Bryant (from New Providence), from which it differs in many very pronounced characters. The color bordering the hinder edge of the black 'mask' is not light ashy, as in that species, but gamboge-yellow, as in *G. beldingi*, nobis (from Lower California). The yellow of the lower parts is much more intense, being, even on the flanks (which are pale grayish-yellow in *rostratus*), as bright as on the breast in *rostratus*. The lower mandible (in both sexes) is blackish, instead of pale brownish, and the bill has a very different shape, being much more curved, more compressed terminally, and the culmen forming an elevated, almost knife-like ridge, as in *Helinaia swainsoni*. The female is many shades richer in coloration than that of *G. rostratus*, which in plumage resembles rather closely the same sex of *G. trichas occidentalis* Brewst.

Two adult males and one adult female in the collection.

I take pleasure in naming this fine new species after Mr. Charles B. Cory, author of 'Birds of the Bahama Islands,' and other well-known ornithological works.

2. Geothlypis tanneri, sp. nov.

SP. CHAR.—Similar to *G. coryi*, but bill more robust and straighter, black of forehead more extended, yellow posterior border to 'mask' paler and changing to yellowish-gray across crown, olive-green of upper parts much duller, and yellow of lower parts less intense.

Adult male (type No. 108,402, U. S. Nat. Mus., Abaco I., Bahamas, Apr. 3, 1886; Charles H. Townsend): Wing, 2.65; tail, 2.50; culmen, .75; bill from nostril, .43; depth at base, .22; width, .22; tarsus, .88. *Adult female* (No. 108,496, same locality and date; Willard Nye): In plumage, nearly intermediate between the same sex of *G. rostratus* and *G. coryi*, having more, and brighter, yellow on lower parts than the former, and less than the latter; head, however, more as in *G. rostratus*, the distinct yellow superciliary stripe of *coryi* being absent, and the fore part of crown tinged with reddish brown. Wing, 2.35; tail, 2.50; culmen, .70; bill from nostril, .42; depth at base, .22; width, .22; tarsus, .85.

Three adult males and one female.

This new species is dedicated to Captain Z. L. Tanner, commander of the 'Albatross,' to whom the naturalists accompanying the expedition are indebted for facilities kindly extended to them in the prosecution of their work.

3. Centurus nyeanus, sp. nov.

SP. CHAR.—Similar to *C. superciliaris* (Temm.) of Cuba, but much smaller, the white bars of upper parts and gray of lower parts almost entirely devoid of yellow tinge, red of belly and black superciliary spot more restricted, and outer webs of middle tail-feathers without spots.

Adult male (type No. 107,996, U. S. Nat. Mus., Wattling's I., Bahamas, March 5, 1886; Willard Nye): Frontlet bright scarlet, paler anteriorly and along lower edge; forehead (for about .30 of an inch back from base of culmen), lores, suborbital region, and auriculars white, the latter with a faint buffy-grayish tinge; crown, occiput and hind-neck bright crimson-scarlet, lighter posteriorly; back, scapulars, and rump barred with black and dull white, the two colors in about equal amount, the bars of each averaging about .08 of an inch in width; wing-coverts more broadly barred, with black and pure white; alulæ and primary coverts uniform black, the exterior feather of the former with some white along edge; primaries black, irregularly spotted with white toward base, and more or less broadly tipped with white; upper tail-coverts white, rather distantly and irregularly barred with black; tail black, the inner webs of intermediæ marked with oblique quadrate spots of white, the outer webs with an irregularly wedge-shaped streak of white on basal half (chiefly concealed by coverts), exterior pair barred or tranversely spotted with white on terminal portion. Chin and upper part of throat grayish buffy-white, gradually deepening into light buffy-grayish on lower throat; fore-neck, sides of neck, and chest deeper grayish, this color assuming decidedly more of a buffy tinge on the breast, upper part of belly, and on flanks; central lower part of belly dull scarlet, the adjacent portions, including lower tail-coverts, dingy white, marked with V-shaped bars of blackish. Bill entirely black; feet dusky. Wing, 5.20; tail, 4.00; culmen, 1.50; tarsus, .92.

This handsome new species is dedicated to Mr. Willard Nye, collector of the unique type.

4. Centurus blakei, sp. nov.

SP. CHAR.—Similar to *C. nyeanus* but much darker, the forehead pale drab, or light grayish-buff (instead of pure white); auriculars deep light drab, fore-neck and chest olivaceous-drab, and lighter bars of back, scapulars and rump, light dingy buff instead of nearly pure white; frontlet dull orange-red (instead of pure vermillion, or scarlet).

Adult male (type No. 108,618, Abaco I., Bahamas, April 2, 1886; Charles H. Townsend): Wing, 5.35; tail, 3.90; culmen, 1.45; tarsus, .90.

Adult female (type No. 198,619, same locality, April 6, 1886; Willard Nye): Similar to the male, but crown and occiput ash-gray, becoming gradually lighter anteriorly, the hinder portion (connecting superciliary spots) spotted with black; frontlet merely tinged with orange, and grayish of lower parts, as well as white bars of back, etc., much less strongly tinged with yellowish. Wing, 5.25; tail, 3.80; culmen, 1.35; tarsus, .85.

Eleven adult males, six adult females.

This new species is dedicated to his Excellency, Governor Henry A. Blake, to whom the naturalists accompanying the 'Albatross' are indebted for many courtesies and kind attentions.

THE BIRDS OF THE WEST INDIES, INCLUDING THE BAHAMA ISLANDS, THE GREATER AND THE LESSER ANTILLES, EXCEPTING THE ISLANDS OF TOBAGO AND TRINIDAD.

BY CHARLES B. CORY.

[*Continued from p. 245.*]

FAMILY COTINGIDÆ.

GENUS **Hadrostomus** CAB.

Hadrostomus CABANIS, Mus. Hein. II, p. 85 (1859).

Hadrostomus niger (GMEL.).

Lanius niger GMEL. Syst. Nat. I, p. 301 (1788).

Tityra leuconotus GRAY, Gen. Bds. I. pl. 63 (1844).—GOSSE, Bds. Jam. 187 (1847).

Pachyrhynchus atterrimus LAFR. Rev. Zool. 1846, p. 320.

Pachyrhamphus nigrescens CAB. Orn. Not. I, p. 241.—BP. Consp. I, p 180 (1850).

Pachyrhamphus niger SCL. P. Z. S. 1857, p. 72.

Platypsaris nigra SCL. P. Z. S. 1861, p. 77.—ALBRECHT, J. f. O. 1862, p. 207.

Hadrostomus niger CAB. & HEINE, Mus. Hein. II, p. 85 (1859). — SCL. Cat. Am. Bds. p. 239 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 290.—SCL. & SALV. Nom. Avium Neotr. p. 56 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, List Bds. W. I. p. 16 (1885).

SP. CHAR. *Male:*—Top of the head black, shading into dark brown, with a blackish gloss on the back; throat, breast and belly smoke-color; a faint tinge of rufous on the flanks; wings and tail dark brown, almost black; tertials and some of the wing-coverts heavily marked with white, forming a partially concealed white patch at the junction of the wing and back.

Female:—Top of the head dark brown; a malar stripe of light brown; throat brownish white, rest of underparts dull white; crissum brownish olive; back and rump dark slate-color; wings and tail brown, pale rufous on the inner webs of the primaries; outer webs of secondaries, and some of the inner primaries, showing dull rufous brown.

Length (skin), 7.20; wing, 4; tail, 3.50; tarsus, .85; bill, .55.

HABITAT. Jamaica.

FAMILY CAPRIMULGIDÆ.

GENUS **Nyctibius** VIEILL.

Nyctibius VIEILLOT, Analyse, p. 38 (1806).

Nyctibius jamaicensis (GMEL.).

Caprimulgus jamaicensis GMEL. Syst. Nat. I, p. 1029 (1788).—DENNY, P. Z. S. 1847, p. 38.

Nyctibius jamaicensis GOSSE, Bds. Jam. p. 41 (1847).—BP. Consp. I, p. 58 (1850).—SCL. P. Z. S. 1861, p. 77; *ib.* Cat. Am. Bds. p. 278 (1862). —ALBRECHT, J. f. O. 1862, p. 199.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.—GRAY, Handl. Bds. I, p. 56 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 95 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, List Bds. W. I. p. 16 (1885).

SP. CHAR. *Male:*—General plumage grayish, heavily marked, streaked, and blotched with brown and white; some of the feathers sparsely

tinged with pale rufous on the back, wing-coverts, and underparts; throat dull white, the shafts of the feathers brown, giving the throat the appearance of being streaked with narrow lines of brown; these lines are broader on the shafts of the feathers on the belly, many of the feathers being tipped with brown, and showing the pale rufous edging before mentioned; wings and tail brown, imperfectly banded with pale markings; upper surface of tail showing imperfect white bands; under surface of tail thickly mottled with dull white; under surface of wings brown, with white dots.

Length (skin), 16; wing, 12; tail, 8.50; culmen, 1.

HABITAT. Jamaica.

Nyctibius pallidus GOSSE.

Nyctibius pallidus GOSSE, Bds. Jam. p. 49 (1847).—BP. Consp. I, p. 58 (1850).—ALBRECHT, J. f. O, 1862, p. 199.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.—SCL. P. Z. S. 1866, p. 129 (?).—GRAY, Handl. Bds. I, p. 56 (1869).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, List Bds. W. I. p. 16 (1885).

"Length 11 inches, expanse 22, rictus 1⅛, beak from feathers to tip ⅝, flexture, 6, tail 3¾.

"The nostrils prominent, tubulated, and covered with a membrane; from the nostrils runs a deep groove or furrow towards the tip. The beak was bent like the end of an Owl's, and when closed was longer than the under mandible; the latter was of a subulated form, shorter and bending in a contrary direction to the upper one: it was broader than the upper; its margins were inverted, and received the upper one exactly, when closed. There were no bristles on the angle of the mouth. The tibiæ (tarsi?) or shank-bones are shortened into a heel, so that the measure of what is usually called the leg, from the bend of the knee to the first joint of the middle toe, is only 2-8 of an inch. The length of that part which ought to be called the leg, (tibia?) is 1½ inch, and the bone of the thigh 1 inch. Toes four, three before, one behind; covered with ash-coloured scales, very flat beneath, and all connected by narrow membrane. Claws brown, strong, gently curved, and compressed; middle claw thinned to an edge on the inner side, but not serrate. Tail of ten feathers, equal, broad, rounded, barred with blackish and grey, and these bars again marked with less black bars. Wing quills coloured chiefly like the tail, but deeper; secondaries edged with clay-colour; winglet and long coverts immediately beneath it, black, with a few whitish bars; greater coverts black, edged with clay-colour; the next row of coverts whitish, with black shafts; the next row black, making a large triangular black spot in the expanded wing. Eyes very large, irides bright yellow. Head, neck, and throat, white, with black shafts; above each eye some black and white streaked feathers in an erect position, forming two small

roundish rings. On the breast, clay-coloured feathers with black shafts and black spots. Sides, belly, and vent, white with black shafts. A line of black feathers down the middle of the back; rumd ashy, with narrow black shafts. On shoulders a mixture of ash and clay-colour, with black shafts. Plumage very loose. Weight, 3 oz., 7 sc." (GOSSE, from Robinson's MSS., Bds. Jam. pp. 49, 50. 1847.)

HABITAT. Jamaica.

This is a very doubtful species, not generally recognized by authors. Probably the same as *N. jamaicensis*.

GENUS **Chordeiles** SWAINS.

Chordeiles SWAINSON, Fauna Bor. Amer. II, p. 496 (1831).

Chordeiles minor CAB.

Chordeiles minor CAB. J. f. O. 1856, p. 5.—SCL. Cat. Am. Bds. p. 279 (1862).—ALBRECHT, J. f. O. 1862, p. 199.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.—SCL. & SALV. Nom. Avium Neotr. p. 96 (1873).—GUNDL. J. f. O. 1874, p. 117; *ib.* Anal. Soc. Esp. Hist. Nat. VII. p. 202 (1878).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, Bds. Bahama I. p. 106 (1880); *ib.* Bds. Haiti & San Domingo, p. 85 (1885); *ib.* List Bds. W. I. p. 16 (1885).

Chordeiles gundlachii LAWR. Ann. Lyc. N. Y. VI, p. 165 (1856).

Chordeiles popetue BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 108 (1859).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 282 (1865); *ib.* J. f. O. 1874, p. 117.

Chordeiles gundlachi BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).

Chordeiles popetue var. *minor* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 400 (1874).

SP. CHAR. *Male:*—Above dark brown, variegated with white and tawny; underparts tawny, banded with brown; throat tawny, becoming whitish on the breast; a white line from sides of throat to chin; first two primaries with a spot on the inner web, and the second and third with a band of white; edge of carpus white.

The female differs from the male by having the sides of the throat rufous instead of white.

Length, 8.25; wing, 7; tail, 4; tarsus, .50; bill, .20.

HABITAT. Antilles.

Chordeiles virginianus (BRISS.).

Caprimulgus virginianus BRISSON, Orn. p. 477 (1760).—GMEL. Syst. Nat. I, ii, 1028 (1788).

Chordeiles virginianus GOSSE, Bds. Jam. p. 33 (1847).—LEMB. Aves Cuba, p. 51 (1850) (?).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 600 (?).—CORY, List Bds. W. I. p. 16 (1885).

Chordeiles popetue var. *popetue* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 401 (1874) (Greater Antilles).

I have never seen a specimen of *C. virginianus* from the West Indies; several authors have recorded it, but it is possible that they may have mistaken *C. minor* for this species.

GENUS **Antrostomus** GOULD.

Antrostomus "GOULD, Icones Avium, 1838."

Antrostomus rufus (BODD.).

Caprimulgus rufus "BODD. et GMEL. ex Pl. Enl. p. 735."

Antrostomus rufus CASSIN, Pr. Acad. Nat. Sci. Phila. V, p. 183.—SCL. P. Z. S., 1866, p. 136.—GRAY, Handl. Bds. I, p. 59 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 96 (1873).—CORY, List Bds. W. I. p. 16 (1885).

Antrostomus rutilus BURM. Syst. Ueb. II, p. 385.—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880).

SP. CHAR.—Upper surface mottled and varied with brown and black; the terminal portions of the feathers on the head with broad patches of black in the centre of the feathers; underparts darkening on the breast, but becoming heavily tinged with rufous on the abdomen and crissum; primaries broadly blotched with light rufous, heaviest on the outer webs; a large blotch of white on the terminal portion of the inner web of the outer tail-feather, showing upon both webs of the second and third feathers; central tail-feathers dark brown, heavily mottled with rufous; feet black. In general appearance the bird is smaller and much darker than *A. carolinensis*.

Length, 10.50; wing, 7.50; tail, 5; tarsus, .60.

Recorded from Santa Lucia, W. I.

Antrostomus carolinensis (GMEL.).

Caprimulgus carolinensis GMEL. Syst. Nat. I, p. 1028 (1788).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 96 (1840).

Antrostomus carolinensis GUNDL. Repert. Fisico-Nat. Cuba, I, p. 283 (1865); *ib.* J. f. O. 1874, p. 120 (Cuba).—SCL. P. Z. S. 1866, p. 136 (Jamaica).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 201 (1878) (Porto Rico).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—

CORY, Bds. Bahama I. p. 104 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 153 (1881) (Haiti); *ib.* List Bds. W. I. p. 16 (1885).

Androstomus carolinensis CORY, Bds. Haiti & San Domingo, p. 84 (1885).

Recorded from Cuba, Porto Rico, Jamaica, Haiti, San Domingo, and Bahamas.

Antrostomus cubanensis LAWR.

Caprimulgus vociferus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 98 (1840).—LEMB. Aves Cuba, p. 130 (1850).

Antrostomus vociferus GUNDL. J. f. O. 1856, p. 6.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—SCL. & SALV. Nom. Avium Neotr. p. 96 (1873).

Antrostomus cubanensis LAWR. Ann. Lyc. Nat. Hist. N. Y. 1862, p. 260.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 283 (1865); *ib.* J. f. O. 1874, p. 120.—GRAY, Handl. Bds. I, p. 59 (1869).—CORY, List Bds. W. I. p. 16 (1885).

Antrostomus macromystax var. *cubanensis* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 409 (1874).

"*Adult male:*—Upper plumage dark ash, minutely mottled with dull rufous and grey, the feathers conspicuously marked with longitudinal stripes of black in their centres; a line extends from the bill over the eye and along the crown of greyish white, tinged with pale rufous and intermixed with black; the tertiaries ochraceous-white, beautifully variegated with black, and having near the end of each feather an irregular patch of velvety black; wing-coverts the same color as the back, some of them marked near their ends with ochraceous spots; primaries dark reddish-brown sprinkled with dull rufous and grey at their ends, and having bright rufous spots arranged regularly on their outer webs, there are spots also on their inner webs, more obscure in color and assuming a mottled form; secondaries dark brown, mottled with grey on the outer webs, and tinged with rufous on the inner; tail very full, of a fine deep brown, the two central tail-feathers closely banded with curving bars of mottled grey and pale rufous, the next feather on each side, with the bars dull rufous, and rather narrowly tipped with ochraceous-white, less in extent on the inner web, the three outer feathers are irregularly barred with dull rufous mottling for their basal half, their ends for about an inch creamy-white, with ochraceous edges; throat dark brown, minutely freckled with rufous, the neck immediately below this color crossed with a band of pale rufous; a line of pale rufous-white or ochraceous spots extend along below the under mandible, and down the side of the neck, a few spots of the same in a line below the eye; on the side of the neck enclosed by these spots and the band across the throat,

is a triangular blackish-brown patch, speckled with rufous; sides of the head brown, freckled with minute rufous spots; feathers of the breast and abdomen ochraceous white, more or less tinged with rufous, and having their centres dark brown, and their sides and ends barred and mottled with the same color; the exposed ends of the feathers being but little mottled give quite a light appearance to the under plumage; lower part of the abdomen and under tail-coverts dull pale rufous, the feathers of the latter with dark markings along their shafts; sides under the wings dull rufous narrowly barred with dark brown; under wing-coverts brown mottled with rufous; tarsi clothed in front with rufous brown feathers; the bill is light brown, black at the point, and having very strong bristles, some of which are nearly two inches in length, and furnished with lateral filaments; feet brown. Length about 11½ inches; wing 7½; tail 5¾; tarsus ¾." (LAWR. l. c. orig. descr.)

HABITAT. Cuba.

GENUS **Stenopsis** CASSIN.

Stenopsis CASSIN, Pr. Acad. Nat. Sci. Phila. 1851, p. 179.

Stenopsis cayennensis (GMEL.).

Caprimulgus cayennensis GMEL. Syst. Nat. I, p. 1031 (1788).—CAB. in Schomb. Guiana, III, p. 710 (1848).

Caprimulgus cayanus LATH. Ind. Orn. II, p. 587 (1790).

Caprimulgus leopetes JARD. & SELBY, Ill. Orn. II, pl. 87.

Caprimulgus odontopteron LESS. Rev. Zool. 1839, p. 105.

Antrostomus cayennensis BP. Consp. I, 61 (1850).

Stenopsis cayennensis CASSIN, Pr. Acad. Nat. Sci. Phila. 1851, p. 179.—CAB. & HEIN. Mus. Hein. III, p. 91.—SCL. Cat. Am. Bds. p. 280 (1862).—GRAY, Handl. Bds. I, p. 59 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 96 (1873) (Martinique).—CORY, List Bds. W. I. p. 16 (1885).

SP. CHAR. *Male:*—Upper surface a mixture of gray, rufous, dark brown, and white, the feathers mottled and edged with the different colors; the two central tail-feathers gray, curiously marked with dark brown, rest of the tail-feathers white, edged with brown on the outer webs, and banded near the centre, the brown lacking on the outer web of the outer feather; under surface of tail-feathers white, showing a band of brown across the centre; throat and abdomen white; breast heavily mottled with rufous; wings dark brown, the coverts mottled with rufous and blotches of white; a heavy band of white crossing the middle of the primaries.

Female.—Entirely lacks the white markings on the wings and tail; the general plumage is dull brown, variously marked with

brown and rufous; the under surface being dull rufous, narrowly banded with brown; wings and tail brown, marked with rufous.

Length (skin), 8.75; wing, 5.50; tail, 4.50; tarsus, 60.

It is claimed that this species occurs in the Lesser Antilles. A specimen in my collection is labelled "Trinidad," and Messrs. Sclater and Salvin give it from Martinique.

GENUS **Siphonorhis** SCL.

Siphonorhis SCLATER, P. Z. S. 1861, p. 77.

Siphonorhis americanus (LINN.).

'*Caprimulgus jamaicensis* BRISS. Av. II, p. 480."
Caprimulgus americanus LINN. Syst. Nat. I, p. 346 (1766).
Chordeiles americanus BP. Consp. I, p. 63 (1850).
Siphonorhis americanus SCL. P. Z. S. 1861, p. 77; *ib.* Cat. Am. Bds. p. 282 (1862).—ALBRECHT, J. f. O. 1862, p. 199.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.—GRAY, Handl. Bds. I, p. 60 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 97 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).
Siphonorhis americana CORY, List Bds. W. I. p. 16 (1885).

SP. CHAR. *Male:*—General plumage above rufous brown, mottled and streaked with gray, dull white, bright rufous, and dark brown; a patch of dull white on the throat; breast rufous, delicately dotted and lined with brown; feathers of the underparts broadly tipped with dull white; tail dull rufous, streaked and marked with brown, showing a sub-terminal band of brown, the feathers tipped with white; primaries dark brown, broadly dotted with rufous on the outer webs, showing various markings of rufous on the inner webs.

Length (skin), 9; wing, 5; tail, 4.75; tarsus, .90.

HABITAT. Jamaica.

FAMILY CYPSELIDÆ.

GENUS **Cypselus** ILLIG.

Cypselus ILLIGER, Prodr. Syst. Mamm. et Avium, p. 229 (1811).

Cypselus phœnicobius (GOSSE).

Tachornis phœnicobia GOSSE, Bds. Jam. p. 58 (1847).—GUNDL. J. f. O. 1856, p. 5.—ALBRECHT, J. f. O. 1862, p. 194.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 287.—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).

Cypselus iradii LEMB. Aves Cuba, p. 50 (1850).
Cypselus phœnicobia BP. Consp. I, p. 66 (1850).
Cypselus cayennensis SALLÉ, P. Z. S. 1857, p. 232.
Tachornis gradii BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).
Cypselus phœnicobius SCL. P. Z. S. 1865, p. 604.—SCL. & SALV. Nom. Avium Neotr. p. 94 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 87 (1885); *ib.* List Bds. W. I. p. 17 (1885).
Tachornis iradii GUNDL. Repert. Fisico-Nat. Cuba, I, p. 282 (1866); *ib.* J. f. O. 1874, p. 116.
Cypselus cayanensis BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).
Tachornis phœnicobius GRAY, Handl. Bds. I, p. 64 (1869).

SP. CHAR. *Male:*—General plumage dull greenish black; throat, rump, abdomen, and a narrow line in the centre of the belly white; bill and feet black.

The sexes are similar.

Length, 3.75; wing, 3.70; tail, 1.75; tarsus, .20; bill, .15.

HABITAT. Cuba, Jamaica, Haiti, and San Domingo.

GENUS **Cypseloides** STREUBEL.

Cypseloides STREUBEL, Isis, 1848, p. 360.

Cypseloides niger (GMEL.).

Hirundo niger GMEL. Syst. Nat. I, p. 1025 (1788).
Cypselus niger GOSSE, Bds. Jam. p. 63 (1847).—GUNDL. & LAWR. Ann. N. Y. Lyc. VI, p. 268 (1858).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—ALBRECHT, J. f. O. 1861, p. 207; *ib.* 1862, p. 194.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 287.—A. & E. NEWTON, Handb. Jamaica, p, 108 (1881).
Cypselus nigra BP. Consp. I, p. 66 (1850).
Cypselus borealis KENN. Pr. Acad. Nat. Sci. Phila. 1857, p. 202.—SCL. P. Z. S. 1865, p. 615.
Nephocætes niger BAIRD, CASS. & LAWR. Bds. N. Am. p. 142 (1858).—GRAY, Handl. Bds. I, p. 68 (1869).—GUNDL. J. f. O. 1874, p. 115; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 200 (1878).
Cypseloides niger SCL. P. Z. S. 1865, p. 615.—SCL. & SALV. Nom. Avium Neotr. p. 95 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 459, 487 (1878).—SCL. Ibis, 1880, p. 74.
Nechopætes niger GUNDL. Repert. Fisico-Nat. Cuba, I, p. 281 (1866.)
Nephœcetes niger COOPER, Orn. Cal. I, p. 349 (1870).—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 429 (1874).—CORY, Bds. Haiti & San Domingo, p. 88 (1885); *ib.* List Birds W. I. p. 17 (1885).

SP. CHAR. *Male:*—Entire plumage dark brown, showing slight greenish

reflections when held to the light; forehead slightly washed with white; a dark spot in front of the eye; bill and feet black.

The sexes are similar.

Length, 6; wing, 6; tail, 2.50; tarsus, .40; bill, .20.

HABITAT. San Domingo, Jamaica, Cuba, Porto Rico, and Guadeloupe.

GENUS **Chætura** STEPH.

Chætura STEPHENS, Shaw's Gen. Zool. Birds, XIII, pt. ii, p. 76 (1825).

Chætura dominicana LAWR.

Chætura poliura LAWR. Pr. U. S. Nat. Mus. I, p. 62 (1878).

Chætura dominicana LAWR. Ann. N. Y. Acad. Sci. I, p. 255 (1878); *ib.* Pr. U. S. Nat. Mus. I, p. 487 (1878).—SCL. Ibis, 1880, p. 75.—CORY, List Bds. W. I. p. 17 (1885).

SP. CHAR.—Entire upper surface dark brown, almost black, showing a faint olive tinge to the feathers when held in the light; under portions dark smoky brown, palest on the throat; wings and tail dark brown; rump lighter than than the back; bill and feet black.

Length, 4; wing, 3.80; tail, 2.

HABITAT. Dominica.

GENUS **Hemiprocne** NITZSCH.

Hemiprocne NITZSCH, Pterylogr. p. 123 (1840).

Hemiprocne zonaris (SHAW).

Hirundo zonaris SHAW, in Mill. Cim. Phys. pl. 55.

Hirundo albicollis VIEILL. Nouv. Dict. XIV, p. 524.

Cypselus collaris TEMM. Pl. Col. p. 195 (1820-39).—MAX. Beitr. III, p. 344 (1831).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—ALBRECHT, J. f. O. 1861, p. 206.—GUNDL, J. f. O. 1874, p. 114.

Hemiprocne collaris NITZSCH, Pterylogr. p. 123 (1840).

Pallene collaris BOIE, Isis, 1844, p. 168.
Acanthylis collaris GOSSE, Bds. Jam. p. 51 (1847).—GRAY, List Sp. Fiss. p. 15.—BP. Consp. I, p. 64 (1850).—BURM. Syst. Ueb. II, p. 364.
Hemiprocne torquata STREUBEL, Isis, 1848, p. 362.
Acanthylis albicollis SCL. P. Z. S. 1854, p. 10.
Hemiprocne zonaris SCL. & SALV. Ibis, 1860, p. 37.—CAB. & HEIN. Mus. Hein. III, p. 84 (1860).—SCL. & SALV. Nom. Avium Neotr. p. 95 (1873).—CORY, List Bds. W. I. p. 17 (1885).
Chætura zonaris SCL. P. Z. S. 1861, p. 79; *ib.* Cat. Am. Bds. p. 282 (1862); *ib.* P. Z. S. 1865, p. 609.—ALBRECHT, J. f. O. 1862, p. 201.
Nephocætes collaris GUNDL. J. f. O. 1862, p. 177 (?); *ib.* Contrib. Orn. Cuba, p. 83 (1876).
Chætura collaris MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.
Acanthyllis zonaris A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).

SP. CHAR. *Male:*—Very large. Entire plumage brownish-black, deepest on the back, and showing a tinge of bluish when held in the light, lightest on the throat and primaries; an unbroken collar of white passes around the neck.

The female seems to be similar, but some specimens show more white where the collar touches the breast.

Length (skin), 7.50; wing, 8; tail, 2.75.

HABITAT. Jamaica and Cuba. San Domingo?

FAMILY TROCHILIDÆ.

GENUS **Glaucis** BOIE.

Glaucis BOIE, Isis, 1831, p. 545.

Glaucis hirsuta (GMEL.).

Trochilus hirsutus GMEL. Syst. Nat. I, p. 490 (1788).
Trochilus brasiliensis LATH. Ind. Orn. I, p. 308 (1790).
Trochilus ferrugineus WEID, Beitr. IV, p. 120, Sp. 21.
Trochilus mazeppa LESS. Troch. p. 18, pl. 3 (1831).
Trochilus superciliosus LESS. Colib. t. 6 (1831) ♀ ?
Glaucis hirsuta BOIE, Isis, 1831, p. 545.—REICH. Aufz. Colib. p. 15 (1853).—BP. Rev. Mag. Zool. 1854, p. 249.—CAB. & HEIN. Mus. Hein. III, p. 4 (1860).—GOULD, Mon. Troch. I, pl. 5 (1861).—SALV. & ELLIOT, Ibis, 1873, p. 276.—MULS. Hist. Nat. Ois. Mouch. I, p. 39—ELLIOT, Mon. Troch. p. 6 (1878).—CORY, List Bds. W. I. p. 17 (1885).
Trochilus dominicus LICHT. (*nec* Linn.) Doublt. p. 10, Sp. 110.
Polytmus hirsutus GRAY, Gen. Bds. I, p. 108 (1844).

Glaucis mazeppa REICH. Aufz. Colib. p. 15 (1853).—BP. Rev. Mag. Zool. 1854, p. 249.—GOULD, Mon. Troch. I, pl. 6 (1861).

Glaucis melanura GOULD, P. Z. S. 1860, p. 364; *ib.* Mon. Troch. I, pl. 9 (1861).

Glaucis lanceolata GOULD, Mon. Troch. I, pl. 8 (1861).

Glaucis ænea LAWR. Pr. Acad. Nat. Sci. Phila. 1867, p. 232.

Glaucis hirsutus SCL. & SALV. Nom. Avium Neotr. p. 78 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 271, 487 (1878).

SP. CHAR. *Male:*—Bill stout, long and curved; the upper mandible dark, the lower mandible light; top of head dull brown; back green, the feathers delicately edged with rufous; tail bronze green on the central feathers, the rest rufous, showing a sub-terminal bar of greenish brown, and all the feathers tipped with white; underparts dull rufous; the throat showing greenish feathers in places.

Female:—Similar to the male, but lacks the mottling on the throat, the entire surface being rufous.

Length (skin), 4.75; wing, 2; tail, 1.75; bill, 1.25.

HABITAT. Grenada.

GENUS **Lampornis** SWAINS.

Lampornis SWAINSON, Zool. Journ. III, p. 358 (1827).

Lampornis dominicus (LINN.).

Trochilus dominicus LINN. Syst. Nat. I, p. 191 (1766).—GMEL. Syst. Nat. I, p. 489 (1788).—LATH. Ind. Orn. I, p. 309 (1790).

Trochilus margaritaceus GMEL. Syst. Nat. I, p. 490 (1788).

Trochilus aurulentus VIEILL. Ois. Dor. pl. XII (1802).—SHAW, Gen. Zool. VIII, p. 306 (1811).

Polytmus margaritaceus GRAY, Gen. Bds. I, p. 108 (1844).

Lampornis margaritaceus BP. Consp. I, p. 72 (1850).

Eulampis aurulentis BP. Consp. I, p. 71 (1850); *ib.* Rev. Mag. Zool. 1854, p. 250.

Margarochrysis aurulenta REICH. Aufz. Colib. p. 11 (1853).

Hypophania dominica REICH. Aufz. Colib. p. 11 (1853).

Lampornis aurulenta SALLÉ, P. Z. S. 1857, p. 233.

Lampornis aurulentus CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—GOULD, Mon. Troch. II, pl. 79 (1861).—MULS. Hist. Nat. Ois. Mouch. I, p. 152.—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 223 (1878).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881).—TRISTRAM, Ibis, 1884, p. 168.

Lampornis virginalis GOULD, Mon. Troch. II, pl. 80 (1861).

Trochilus (*Lampornis*) *aurulentus* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.

Lampornis dominicus ELLIOT, Ibis, 1872, p. 349; *ib.* Mon Troch. p. 41 (1878). — CORY, Bds. Haiti & San Domingo, p. 90 (1885); *ib.* List Bds. W. I. p. 17 (1885).

SP. CHAR. *Male:*— Entire upper parts yellowish green; throat bright golden green; breast and belly purplish black; flanks green, showing a spot of white; under tail-coverts dark purple; wings purplish brown; outer tail-feathers violet-purple, bordered with steel blue; median feathers bronze green; bill and feet black.

Female:—Underparts dull gray, whitening on the throat; tail tipped with white; rest as in the male.

Immature specimens have the underparts dull brownish white, with a line of metallic green passing down the middle of the throat, continuing in a line of black down the middle of the breast and abdomen to the vent.

Length, 4.90; wing, 2.60; tail, 1.85; bill, .93.

HABITAT. Haiti, San Domingo, Porto Rico, and St. Thomas?

Lampornis viridis (VIEILL.).

Trochilus viridis AUD. & VIEILL. Ois. Dor. I, p. 34 (1802).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.

Lampornis viridis BP. Consp. I, p. 71 (1850).—GOULD, Mon. Troch. II, pl. 78 (1861).—SCL. & SALV. Nom. Avium Neotr. p. 81 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 222 (1878).—CORY, List Bds. W. I. p. 17 (1885).

Chalybura viridis REICH. Aufz. Colib. p. 10 (1853).

Agyrtria viridis REICH. Troch. Enum. p. 7 (1855).

SP. CHAR. *Male:*—General plumage bright green, showing a bluish tinge on the under surface when held in the light; tail steel blue; wings dark brown; bill black.

Female:— Upper surface bright golden green; head brownish; underparts dull ashy-white, tinged with green on the sides and flanks; central tail-feathers bronze green, rest of tail-feathers showing dark blue on their inner webs, and golden brown on the outer, all of the feathers narrowly tipped with white.

Length (skin), 4; wing, 2.50; tail, 1.75.

HABITAT. Porto Rico.

Lampornis mango (LINN.).

Trochilus mango LINN. Syst. Nat. I, p. 191 (1766).—GMEL. Syst. Nat. I, p. 491 (1788).

Trochilus porphyrurus SHAW, Nat. Misc. IX, p. 333.

Polytmus porphyrurus GRAY, Gen. Bds. I, p. 108 (1844).

Lampornis mango GOSSE, Bds. Jam. p. 88 (1847).—BP. Consp. I, p. 72 (1850).—GOULD, Mon. Troch. II, pl. 74 (1861).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—ELLIOT, Ibis, 1872, p. 350.—SCL. & SALV. Nom. Avium Neotr. p. 81 (1873).—ELLIOT, Mon. Troch. p. 39 (1878).— A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, List Bds. W. I. p. 17 (1885).

Floresia porphyrura REICH. Aufz. Colib. p. 11 (1853).

Lampornis floresi BP. Rev. Mag. Zool. 1854, p. 250.

Anthracothorax porphyrurus REICH. Troch. Enum. p. 8 (1855).

Lampornis porrhyrura CAB. & HEIN. Mus. Hein. III, p. 19 (1860).—SCL. P. Z. S. 1861, p. 79.— ALBRECHT, J. f. O. 1862, p. 201.

Lampornis porphyrurus GOULD, Mon. Troch. II, pl. 81 (1861).—MULS. Hist. Nat. Ois. Mouch. I, p. 163.

Eudoxa porphyrura HEINE, J. f. O. 1863, p. 179.

SP. CHAR. *Male:*—Upper parts olive green; a golden brownish tinge on the back, showing a gloss of purple on the nape; a broad band of metallic purple passes from the bill on each side of the neck; throat and upper breast greenish black; dull black on the belly; tail-feathers purple, edged with steel blue, two central feathers dull black.

The female of this species is described as having the chin green and the throat greenish purple.

Length, 4.85; wing, 2.70; tail, 1.90; bill, .88.

HABITAT. Jamaica.

GENUS **Eulampis** BOIE.

Eulampis BOIE, Isis, 1831, p. 547.

Eulampis jugularis (LINN.).

Trochilus jugularis LINN. Syst. Nat. I, p. 190 (1766).—LATH. Ind. Orn. I, p. 305 (1790).

Trochilus auratus GMEL. Syst. Nat. I, p. 487 (1788).

Trochilus violaceus GMEL. Syst. Nat. I, p. 488 (1788).

Trochilus venustissimus GMEL. Syst. Nat. I, p. 490 (1788).

Trochilus cyanomelas GMEL. Syst. Nat. I, p. 498 (1788).

Trochilus cyaneus LATH. Ind. Orn. I, p. 309 (1790).

Trochilus granatinus LATH. Ind. Orn. I, p. 305 (1790).

Trochilus bancrofti LATH. Ind. Orn. I, p. 317 (1790).

Souimanga prasinoptère VIEILL. Ois. Dor. II, p. 65 (1802).

"*Certhia prasinoptera* SPARR. Mus. Carls. t. 81" ?

Trochilus (*Culampis*) *auratus* LESS. Syn. Genr. Troch. p. 7 (1831).

Polytmus jugularis GRAY, Gen. Bds. I, p. 108 (1844).

Topaza violacea GRAY, Gen. Bds. I, p. 110 (1844).

Eulampis jugularis BP. Consp. I, p. 72 (1850).—REICH. Aufz. Colib. p.

11 (1853).— CAB. & HEIN. Mus. Hein. III, p. 17 (1860).—GOULD. Mon. Troch. II, pl. 82 (1861).—TAYLOR, Ibis, 1864, p. 169.—SCL. P. Z. S. 1871, p. 272.—ELLIOT, Ibis, 1872, p. 352.—MULS. Hist. Nat. Ois. Mouch. II, p. 131.—SCL. & SALV. Nom. Avium Neotr. p. 81 (1873).—ELLIOT, Mon. Troch. p. 43 (1878).—LAWR. Pr. U. S. Nat. Mus. I, pp. 60, 192, 358, 458, 487 (1878).—ALLEN, Bull. Nutt. Orn. Club, V, p. 167 (1880). — LISTER, Ibis, 1880, p. 42. — GRISDALE, Ibis, 1882, p. 486.—CORY, List Bds. W. I. p. 17 (1885).

SP. CHAR. *Male:*—Upper surface velvet black; wings metallic green; upper and under tail-coverts bright metallic bluish green; entire throat including the chin beautiful purple, dull golden in some lights; tail bluish green; bill black.

Length, 4.50; wing, 3.05; tail, 1.65; bill .90.

HABITAT. Lesser Antilles.

Eulampis holosericeus (LINN.).

Trochilus holosericeus LINN. Syst. Nat. I, p. 191 (1766).— LATH. Ind. Orn. I, p. 305 (1790).—LESS. Colib. p. 76 (1831).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 585.

Polytmus holosericeus GRAY, Gen. Bds. I, 108 (1844).

Eulampis holosericeus BP. Consp. I, p. 72 (1850).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—GOULD, Mon. Troch. II, pl. 83 (1861). —TAYLOR, Ibis, 1864, p. 170.— SCL. P. Z. S. 1871, p. 272: *ib.* 1874, p. 175.—ELLIOT, Ibis, 1872, p. 352.—SCL. & SALV. Nom. Avium Neotr. p. 81 (1873).—MULS. Hist. Nat. Ois. Mouch. I, p. 134.— LAWR. Pr. U. S. Nat. Mus. I, pp. 60, 192, 234, 272, 358, 458, 487 (1878).—ELLIOT, Mon. Troch. p. 42 (1878).—ALLEN, Bull. Nutt. Orn. Club, V, p. 167 (1880).—LISTER, Ibis, 1880, p. 42.—GRISDALE, Ibis, 1882, p. 486.—CORY, List Bds. W. I. p. 17 (1885).

Sericotes chlorolæmus REICH. Aufz. Colib. p. 11 (1853).

Sericotes holosericeus REICH. Aufz. Colib. p. 11 (1853).

Eulampis chlorolæmus BP. Rev. Mag. Zool. 1854, p. 250.—GOULD, Mon. Troch. II, pl. 84 (1861).

Anthracothorax (*Sericotes*) *holosericeus* REICH. Troch. Enum. p. 9 (1855).

Anthracothorax chlorolæmus REICH. Troch. Enum. p. 9 (1855).

Lampornis holosericeus CAB. & HEIN. Mus. Hein. III, p. 19 (1860).— GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 224 (1878).

Lampornis chlorolæmus CAB. & HEIN. Mus. Hein. III, p. 19 (1860).

Eulampis longirostris GOULD, Intr. Troch. octavo ed. p. 69 (1861).

Trochilus (*Lampornis*) *holosericeus* SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.

SP. CHAR. *Male:*—Upper plumage dark green, with a slight golden tinge on the back; throat bright green, ending with a patch of blue

on the breast; belly greenish black; upper and under tail-coverts bright bluish-green; tail dark blue, showing slight purple reflections.

The sexes are described as similar.

Length, 4.30; wing, 3; tail, 1.50; bill, .85.

HABITAT. Lesser Antilles.

GENUS **Aithurus** CAB. & HEIN.

Aithurus CAB. & HEIN. Mus. Hein. III, p. 50 (1860).

Aithurus polytmus (LINN.).

Trochilus polytmus LINN. Syst. Nat. I, p. 189 (1766).—GMEL. Syst. Nat. I, p. 486 (1788).—LATH. Ind. Orn. I, p. 302 (1790).—GOSSE, Bds. Jam. p. 97 (1847).—GOULD, Mon. Troch. IV, pl. 98 (1861).

Ornismya cephalatra LESS. Ois. Mouch. p. 78 (1829).

Trochilus maria HILL, Ann. Mag. Nat. Hist. III, p. 258 (1849).—GOSSE, Ill. Bds. Jam. pl. 22.

Polytmus cephalatra BP. Consp. I, p. 72 (1850).

Polytmus cephalater BP. Rev. Mag. Zool. 1854, p. 254.—SCL. P. Z. S. 1861, p. 79.—ALBRECHT, J. f. O. 1862, p. 201.

Aithurus polytmus CAB. &. HEIN. Mus. Hein. III, p. 50 (1860).—GOULD, Intr. Troch. octavo ed. p. 75 (1861).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—GRAY, Handl. Bds. I, p. 134 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 82 (1873).—ELLIOT, Mon. Troch. p. 96 (1878).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, List Bds. W. I. p. 17 (1885).

Aithurus fuliginosus MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 285.—GRAY, Handl. Bds. I, p. 134 (1869).

SP. CHAR. *Male:*—Top of head, with elongated feathers, velvety black; back dark green; throat and underparts bright green; wings brown, with a tinge of purple; tail black, the two long tail-feathers showing peculiar uneven edging of the webs; bill dull red.

Female:—Upper parts green, brownish on the head; underparts white, tinged with green on the sides and flanks; middle tail-feathers green, bluish near the tip; outer tail-feathers heavily tipped with white, wanting on the two middle feathers.

Length, 8.50; wing, 2.50; tail, 5.50; bill, .80.

HABITAT. Jamaica.

GENUS **Thalurania** GOULD.

Thalurania GOULD, P. Z. S. 1848, p. 13.

Thalurania bicolor (GMEL.).

Trochilus bicolor GMEL. Syst. Nat. I, p. 496 (1788).—VIEILL. Ois. Dor. p. 75 (1802).

Ornismya wagleri LESS. Hist. Ois. Mouch. p. 203 (1829).

Hylocharis wagleri GRAY, Gen. Bds. I, p. 114 (1844).

Thalurania wagleri BP. Consp. I, p. 77 (1850).—REICH. Aufz. Colib. p. 7 (1853).—CAB. & HEIN. Mus. Hein. III, p. 24 (1860).—GOULD, Mon. Troch. II, pl. 109 (1861).—SCL. & SALV. Nom. Avium Neotr. p. 83 (1873).—SALV. & ELLIOT, Ibis, 1873, p. 360.—LAWR. Ann. N. Y. Acad. Sci. I, p. 46 (1878); *ib.* Pr. U. S. Nat. Mus. I, pp. 61, 487 (1878).

Thalurania bicolor GRAY, Handl. Bds. I, p. 130 (1869).—ELLIOT, Mon. Troch. p. 102 (1878).—CORY, List Bds. W. I. p. 17 (1885).

SP. CHAR. *Male:*—Entire head and throat deep blue, but very slightly metallic; back dark green; breast and abdomen metallic golden-green; tail-coverts greenish-blue; tail steel blue; wings brown; upper mandible black; under mandible flesh-color, tipped with black.

Female:—Upper surface green, showing slight bronze reflections; underparts dull white, marked with green on the flanks and sides; outer tail-feathers tipped with white; rest of tail-feathers green, broadly marked with blue on the terminal portion.

Length, 3.80; wing, 2.35; tail, 1.70; bill, .60.

HABITAT. Dominica.

GENUS Trochilus LINN.

Trochilus LINNÆUS, Syst. Nat. I, p. 189 (1766).

Trochilus colubris LINN.

Trochilus colubris LINN. Syst. Nat. I, p. 191 (1766).—CAB. J. f. O. 1856, p. 98 (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 291 (1866); *ib.* J. f. O. 1874, p. 141 (Cuba); *ib.* 1878, p. 159 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 221 (1878) (Porto Rico).—ELLIOT, Mon. Troch. p. 105 (1878) (Bahamas).—CORY, List Bds. W. I. p. 18 (1885).

Orthorhynchus colubris D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 126 (1840).

Melisuga colubris BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).

Recorded from Bahamas, Cuba, and Porto Rico.

GENUS Mellisuga BRISS.

Mellisuga BRISSON, Orn. III, p. 695 (1760).

Mellisuga minima (LINN.).

Trochilus minimus LINN. Syst. Nat. I, p. 193 (1766).—GMEL. Syst. Nat. I, p. 500 (1788).—LATH. Ind. Orn. I, p. 320 (1790).
Trochilus minutulus VIEILL. Ois. Am. Sept. II, p. 73 (1807).
Trochilus vieilloti SHAW, Gen. Zool. VIII, p. 347 (1812).
Ornismya minima LESS. Ois. Mouch. pl. 79 (1829).
Hylocharis nigra GRAY, Gen. Bds. I, p. 114 (1844).
Mellisuga humilis GOSSE, Bds. Jam. p. 127 (1847).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 285.
Trochilus catherinæ SALLÉ, Rev. Zool. 1849, p. 498.
Hylocharis niger BP. Consp. I, p. 81 (1850).
Mellisuga minima BP. Consp. I, p. 81 (1850).—REICH. Aufz. Colib. p. 6 (1853).—SALLÉ, P. Z. S. 1857, p. 233.—GOULD, Mon. Troch. III, p. 133.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 285.—MULS. Hist. Nat. Ois. Mouch. IV, p. 82 (1877).—ELLIOT, Mon. Troch. p. 103 (1878).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 92 (1885); *ib.* List Bds. W. I. p. 18 (1885).
Mellisuga humila ALBRECHT, J. f. O. 1862, p. 201.
Trochilus (*Mellisuga*) *minimus* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).

SP. CHAR. *Male:*—Above bright green; flanks green; throat dull white, spotted with brown, heaviest on the lower part; underparts white; under tail-coverts tipped with green; tail black; bill and feet black.

Female:—Resembles the male, but lacks the spots on the throat; lateral tail-feathers tipped with white.

Length, 2.70; wing, 1.50; tail, .60; bill, .45.

HABITAT. Jamaica, Haiti, and San Domingo.

GENUS Calypte GOULD.

Calypte GOULD, Intr. Troch. octavo ed. p. 87 (1861).

Calypte helenæ (LEMB.).

Orthorhynchus helenæ LEMB. Aves Cuba, p. 70 (1850). — BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).
Orthorhynchus boothi CAB. J. f. O. 1856, p. 99.—GUNDL. J. f. O. 1859, p. 347.
Calypte helenæ GOULD, Mon. Troch. III, pl. 136 (1861).—GRAY, Handl. Bds. I, p. 145 (1869).—ELLIOT, Ibis, 1872, p. 354.—GUNDL. J. f. O. 1874, p. 144.—MULS. Hist. Nat. Ois. Mouch. IV, p. 77 (1877).—ELLIOT, Mon. Troch. p. 108 (1878).—CORY, List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—Head, throat, and elongated feathers of the neck metallic red, almost pink in some lights; upper parts greenish-blue, becoming steel-blue on the tail; breast grayish-white; belly and flanks greenish; wings purplish-brown.

Female:—Head dull brown; back green, shading into blue on the lower part; underparts grayish-white; tail bluish-green, outer feathers tipped with white.

Length (skin), 2.50; wing, 1.25; tail, .80; bill, .45.

HABITAT. Cuba.

GENUS **Doricha** REICH.

Doricha REICH. Aufz. der Colib. p. 12 (1853).

Doricha evelynæ (BOURC.).

Calothorax evelynæ GRAY, Gen. Bds. I, p. 110 (1844).—REICH. Aufz. Colib. p. 13 (1853).—GOULD, Mon. Troch. III, pl. 156 (1861).

Trochilus evelynæ BOURC. P. Z. S. 1847, p. 44.

Callothorax evillina BP. Rev. Mag. Zool. 1854, p. 257.

Lucifer evelinæ REICH. Troch. Enum. p. 10 (1855).

Trochilus bahamensis BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 106 (1859).

Doricha evelynæ GOULD, Intr. Troch. octavo ed. p. 95 (1861).—ELLIOT, Ibis, 1872, p. 353.—MULS. Hist. Nat. Ois. Mouch. IV, p. 38 (1877). ELLIOT, Mon. Troch. p. 125 (1878).—CORY, Bds. Bahama I. p. 108 (1880); *ib.* List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—Above green, showing slight golden reflections on the back, with the tips of the feathers, in some specimens, bluish; head darker; throat beautiful purple-violet, below which is a band of white; underparts green, mixed with rufous, shading into white on the flanks; crissum pale rufous white; wings brownish purple; tail appearing black, very dark purple in some lights; outer feathers with faint terminal spot of rufous, second with inner web, and third with inner and basal half of outer web cinnamon; bill and feet black.

Female:—Purple gorget wanting and replaced by dull white, with a slight tinge of rufous; upper parts paler than in the male; sides cinnamon, becoming brightest under the wings; central feathers of the tail bright green, the rest cinnamon; an oblique purplish band on the tips of the fourth feathers.

Length, 3.40; wing, 1.70; tail, 1.40; tarsus, .15; bill, .70.

HABITAT. Bahamas.

Doricha lyrura GOULD.

Doricha lyrura GOULD, Ann. Mag. Nat. Hist. 4th ser. IV, pp. 111, 112 (1869).—ELLIOT, Ibis, 1872, p. 354.—SCL. & SALV. Nom. Avium

Neotr. p. 85 (1873). — MULS. Hist. Nat. Ois. Mouch. IV, p. 41 (1877).—ELLIOT, Mon. Troch. p. 126 (1878).—CORY, Bds. Bahama I. p. 110 (1880); *ib.* List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—General appearance the same as *D. evelynæ*, but differs from it by showing the beautiful purple-violet on the forehead as well as on the throat, and also having a much longer tail, formed somewhat in the shape of a lyre, from which this bird has derived its name. The throat of *D. lyrura* shows bright blue in some lights on the lower part, while that of *D. evelynæ* is almost entirely purple-violet, showing the bluish tinge very slightly if at all.

Female:—Upper parts brownish-green; throat and upper breast dull white; rest of underparts pale rufous brown; central tail-feathers green, rest of tail-feathers pale rufous, showing a black band in the centre.

Length, 3.64; wing, 1.60; tail, 1.58; tarsus, .13; bill, .60.

HABITAT. Inagua and Long Island.

GENUS **Bellona** MULS. & VERR.

Bellona MULS. & VERR. Class. Troch. p. 75 (1865).

Bellona cristata (LINN.).

Trochilus cristatus LINN. Syst. Nat. I, p. 192 (1766).—GMEL. Syst. Nat. I, p. 498 (1788).—LATH. Ind. Orn. I, p. 317 (1790).—SCHOMB. Hist. Barb. p. 681.

Trochilus puniceus GMEL. Syst. Nat. I, p. 497 (1788).

Trochilus pileatus LATH. Ind. Orn. I, p. 318 (1790).

Ornismya cristata LESS. Troch. p. 20 (1831).

Mellisuga cristata GRAY, Gen. Bds. I, p. 113 (1844).

Orthorhynchus cristatus BP. Consp. I, p. 83 (1850).—REICH. Aufz. Colib. p. 11 (1853).—CAB. & HEIN. Mus. Hein. III, p. 61 (1860).—GOULD, Mon. Troch. IV, pl. 205 (1861).—ELLIOT, Ibis, 1872, p. 355.—SCL. P. Z. S. 1874, p. 175.—LAWR. Pr. U. S. Nat. Mus. I, pp. 272, 487 (1878).

Orthorhynchus ornatus GOULD, Mon. Troch. IV, pl. 206 (1861).—SCL. P. Z. S. 1871, p. 272.—ELLIOT, Ibis, 1872, p. 355.—LISTER, Ibis, 1880, p. 42.

Trochilus exilis SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 584.

Bellona cristata MULS. Hist. Nat. Ois. Mouch. III, p. 193 (1876).—ELLIOT, Mon. Troch. p. 178 (1878).—CORY, List Bds. W. I. p. 18 (1885).

Orthorhynchus exilis ALLEN, Bull. Nutt. Orn. Club, V, p. 167 (1880).

SP. CHAR. *Male:*—Forehead and crown bright golden-green, feathers lengthened, forming a crest, the green gradually fading and becoming dark blue on the crest; upper plumage green; throat dull

smoke brown; underparts dull black, showing a faint purplish tinge; bill and feet black.

Female:—Upper parts bronze-green; underparts grayish-brown; central tail-feathers bronze-green, rest of tail-feathers brownish, tipped with ash on the outer feathers.

Length, 2.90; wing, 2; tail, 1.35; bill, .40.

HABITAT. Santa Lucia, Barbadoes, St. Vincent, Martinique, and St. Bartholomew.

Bellona exilis (GMEL.).

Trochilus exilis GMEL. Syst. Nat. I, p. 484 (1788).—LATH. Ind. Orn. I, p. 310 (1790).

Trochilus cristatellus LATH. Ind. Orn. Supp. p. 39 (1790).

Mellisuga exilis GRAY, Gen. Bds. I, p. 113 (1844).

Orthorhynchus chlorolophus BP. Consp. I, p. 83 (1850).

Orthorhynchus exilis REICH. Aufz. Colib. p. 11 (1853).—BP. Rev. Mag. Zool. 1854, p. 256.—A. & E. NEWTON, Ibis, 1859, p. 141.—GOULD, Mon. Troch. IV, pl. 207 (1861).—TAYLOR, Ibis, 1864, p. 170.—ELLIOT, Ibis, 1872, p. 355.—LAWR. Pr. U. S. Nat. Mus. I, pp. 234, 458, 487 (1878).—GRISDALE, Ibis, 1882, p. 486.

Trochilus (*Orthorhynchus*) *exilis* SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.

Bellona exilis MULS. Hist. Nat. Ois. Mouch. III, p. 196 (1876).—ELLIOT, Mon. Troch. p. 179 (1878).—CORY, List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—Forehead and crest bright golden-green, becoming darker green at the tip; upper parts dark green, tinged with bronze on the upper tail-coverts; throat smoke-brown, becoming dull purplish-black on the belly; tinged with green on the sides and flanks; central tail-feathers dull green, rest of tail-feathers dark purple.

Female:—Upper plumage dark green; underparts smoke-gray, tinged with green on the sides; wing-coverts bronzy-green; wings purplish-brown; two central tail-feathers dull green; outer tail-feathers tipped with gray.

Length, 3.40; wing, 2.05; tail, 1.45; bill, .55.

HABITAT. Porto Rico, St. Thomas, Dominica, St. Croix, Montserrat, Nevis, and Martinique.

GENUS Sporadinus BP.

Sporadinus BONAPARTE, Rev. Mag. Zool. 1854, p. 255.

Sporadinus elegans (VIEILL.).

Trochilus elegans VIEILL. Ois. Dor. I, p. 32 (1802).

Ornismya swainsonii LESS. Ois. Mouch. pp. 17, 197 (1829).

Hylocharis elegans GRAY, Gen. Bds. I, p. 114 (1844).
Lampornis elegans BP. Consp. I, p. 72 (1850).
Riccordia elegans REICH. Aufz. Colib. p. 8 (1853).
Sporadinus elegans BP. Rev. Mag. Zool. 1854, p. 255.—SALLÉ, P. Z. S. 1857, p. 233.—GOULD, Mon. Troch. V, pl. 347 (1861).—SCL. & SALV. Nom. Avium Neotr. p. 94 (1873).—ELLIOT, Mon. Troch. p. 241 (1878).—CORY, Bull. Nutt. Orn. Club, IV, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 93 (1885); *ib.* List Bds. W. I. p. 18 (1885).
Chlorestes elegans REICH. Troch. Enum. p. 4 (1855).
Sporadicus elegans CAB. & HEIN. Mus. Hein. III, p. 25 (1860).
Trochilus (*Sporadinus*) *elegans* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).

SP. CHAR. *Male:*—Upper parts bronze-green; throat bright metallic green; a portion of the breast black; wings brownish-purple; tail dark brown, with a bronze lustre on the upper surface; bill flesh color, tip black.

Female:—Above bronze-green; top of head grayish; underparts brownish-gray; central tail-feathers bronze-green; rest of tail-feathers gray, with subterminal black bar; some of the feathers glossed with green.

Length, 4; wing, 2.20; tail, 1.70: bill, .70.

HABITAT. Haiti and San Domingo.

Sporadinus riccordi (GERV.).

Trochilus riccordi GERV. Rev. Mag. Zool. 1835, pls. 41, 42.—BP. Consp. I, p. 81 (1850).
Ornismya parzudaki LESS. Rev. Zool. 1838, p. 315.
Orthorhynchus riccordi D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 128 (1840).
Hylocharis riccordi GRAY, Gen. Bds. I. p. 114 (1844).
Riccordia raimondi REICH. Aufz. Colib. p. 8 (1853).
Sporadinus riccordi BP. Rev. Mag. Zool. 1854, p. 255.—GOULD, Mon. Troch. V, pl. 348 (1861).—MULS. Hist. Nat. Ois. Mouch. II, p. 74 (1875).—ELLIOT, Mon. Troch. p. 241 (1878).—CORY, List Bds. W. I. p. 18 (1885).
Chlorestes raimondi REICH. Troch. Enum. p. 4 (1855).
Chlorestes riccordi GUNDL. J. f. O. 1856, p. 99.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 291 (1856); *ib.* J. f. O. 1874, p. 142.
Sporadicus riccordi CAB. & HEIN. Mus. Hein. III, p. 25 (1860).
Sporadinus ricordi SCL. & SALV. Nom. Avium Neotr. p. 94 (1873).—CORY, Bds. Bahama I. p. 111 (1880).
Sporadinus bracei LAWR. Ann. N. Y. Acad. Sci. I, p. 50 (1877).—CORY, Bds. Bahama I. p. 113 (1880).

SP. CHAR. *Male:*—Entire plumage bronzy green, becoming metallic on the throat; wings purplish brown; four central tail-feathers bronze, the remainder purplish black, showing bronze on the outer webs; under tail-coverts white; upper mandible dark brown; lower mandible pale, becoming dark at the tip; tail forked.

Female:—Resembles the male, except having the crown brownish; throat and centre of abdomen pale buff; under tail-coverts grayish-white.

Length, 3.60; wing, 1.80; tail, 1.50; tarsus, .15; bill, .75.

HABITAT. Cuba and Bahamas.

Sporadinus maugæi (VIEILL.).

Trochilus maugæus VIEILL. Dict. Hist. Nat. VII, p. 568 (1817).
Ornismya magæi LESS. Ois. Mouch. p. 194 (1829).
Thaumatias ourissia BP. Consp. I, p. 79 (1850).
Sporadinus maugæi BP. Rev. Mag. Zool. 1854, p. 255.—GOULD, Mon. Troch. V, pl. 349 (1861).—SCL. & SALV. Nom. Avium Neotr. p. 94 (1873).—MULS. Hist. Nat. Ois. Mouch. II, p. 77 (1875).—ELLIOT, Mon. Troch. p. 242 (1878).—CORY, List Bds. W. I. p. 18 (1885).
Trochilus maugei SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.
Chlorestes gertrudis GUNDL. J. f. O. 1874, p. 315.
Chlorolampis gertrudis CAB. J. f. O. 1875, p. 223.
Sporadinus (Marsyas) maugæi MULS. Cat. Ois. Mouch. p. 13 (1875).
Chlorolampis maugæus GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 225 (1878).

SP. CHAR. *Male:*—Entire plumage bright green, the feathers showing a golden tinge when held in the light; throat dark blue, golden-green in some lights; tail dark blue; wings dark brown.

Female:—Underparts dull white; the central feathers of the tail green, the rest grayish-green, with a band of blue near the tip; outer feathers tipped with grayish-white.

Length (skin), 3.35; wing, 2; tail, 1.25; bill, .55.

HABITAT. Porto Rico.

FAMILY TROGONIDÆ.

GENUS **Priotelus** GRAY.

Priotelus GRAY, List. Gen. Bds. 1840.

Priotelus temnurus (TEMM.).

Trogon temnurus TEMM. Pl. Col. No. 326 (1820-39). — VIGORS, Zool. Journ. 1827, p. 443.—GOULD, Mon. Trog. pt. II (1835).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 165 (1840).—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 319 (1857).

Priotelus temnurus BP. Consp. I, p. 150 (1850).—GUNDL. J. f. O. 1856, p. 106.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860). GRAY, Handl. Bds. I, p. 83. (1869) —GUNDL. Repert. Fisico-Nat. Cuba, I, p. 298 (1866); *ib.* J. f. O. 1874, p. 165.

Prionteles temnurus SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).

Prionoteles temnurus CORY, List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—Top of the head dark blue, purplish on the crown; back bright green, showing a tinge of bluish in some lights; rump showing distinctly bluish, green in some lights; throat white, shading into gray on the breast; belly and under tail-coverts bright red: tail-feathers square at the tips, the two central feathers green on the inner webs, bluish on the outer; rest of tail, except the three outer feathers, blue; outer tail-feather having the terminal half dull white, grayish on the outer web; basal half of the inner web of outer tail-feather dark blue; the second and third feathers nearly the same, but having the white on the outer web more restricted; on the third feather the white appears only in two or three spots, but the terminal portion of the feather for an inch or more is entirely dull grayish white; primaries dark brown, the feathers heavily barred with white on the outer web; some of the coverts also banded with white; lower mandible reddish; upper mandible dark brown.

The sexes are similar.

Length, 10; wing, 5; tail, 5; tarsus, .50; bill, .62.

HABITAT. Cuba.

GENUS Temnotrogon BONAP.

Temnotrogon "BONAPARTE, Consp. Volucr. Zygodact. No. 8. p. 14, 1854."

Temnotrogon roseigaster (VIEILL.).

Couroucou à ventre rouge, de Saint Dominique, BUFF. Hist. Nat. Ois. VI, p. 287 (1779).

"*Le Couroucou á caleçon rouge, ou Le Couroucou Damioiseaux*, LE VAILL. Nat. Cour. pl. 13, p. 18."

Trogon roseigaster VIEILL. Ency. Méth. III, p. 1358 (1820).—GOULD, Mon. Trog. pl. 20 (1838).—BP. Consp. I, p. 149 (1850).—SALLÉ, P. Z. S. 1857, p. 235.— BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).

Trogon rhodogaster TEMM. Pl. Col. III (1820–39).

Temnotrogon roseigaster BP. Consp. Volucr. Zygodact. No. 8, p. 14 (1854).—GRAY, Handl. Bds. I, p. 83 (1869).— CORY, Bds. Haiti & San Domingo, p. 95 (1885).— List Bds. W. I. p. 18 (1885).

Temnotrogon rhodogaster SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).

SP. CHAR. *Male:*—Top of the head, back, and upper tail-coverts lustrous golden green; breast and throat gray, showing a tinge of green when held in the light; belly and under tail-coverts bright red; primaries and secondaries dark slaty brown, the outer webs barred with white; wing-coverts green, narrowly barred with white; under surface of tail dark blue, the three outer feathers having the outer webs and tips white, but showing a spot of black on the outer web near the tip; the inner webs of the two central tail-feathers dull greenish, extending nearly to the tip where it is replaced by the blue of the outer web; bill yellow; feet brownish.

The sexes are similar.

Length, 11; wing, 5.40; tail, 6.40; tarsus, .65; bill, .65.

HABITAT. San Domingo.

FAMILY CUCULLIDÆ.

GENUS **Crotophaga** LINN.

Crotophaga LINNÆUS, Syst. Nat. I, p. 154 (1766).

Crotophaga ani LINN.

Crotophaga ani LINN. Syst. Nat. I, p. 154 (1766).—GOSSE, Bds. Jam. p. 282 (1847).—BP. Consp. I, p. 99 (1850).—SALLÉ, P. Z. S. 1857, p. 234.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—ALBRECHT, J. f. O. 1862, p. 203.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 153.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI. p. 95 (1866).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—BD. BWR. & RIDG. Hist. N. Am. Bds. II, p. 488 (1874).—GUNDL. J. f. O. 1874, p. 159; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 233 (1878).—LAWR. Pr. U. S. Nat. Mus. I, pp. 193, 273, 487 (1878).

—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880).—LISTER, Ibis, 1880, p. 41.—CORY, Bds Bahama I. p. 118 (1880); *ib.* Bull. Nutt. Orn. Club. VI, p. 154 (1881); *ib.* Bds. Haiti & San Domingo, p. 100 (1885); *ib.* List Bds. W. I. p. 18 (1885).—RIDGW. Pr. U. S. Nat. Mus. VII, p. 172 (1884).

Crotophaga minor LESS. Tr. Orn. p. 130 (1831).

Crotophaga lævirostris? BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 105 (1859).

Crotophaga rugirostris GUNDL. Repert. Fisico-Nat. Cuba, I, p. 296 (1866).

SP. CHAR. *Male*:—Upper mandible much curved; culmen rising above the head, flattened to a sharp edge; nostrils situated in the middle of the lower half of the upper mandible; general color black, showing bluish reflections; the feathers of the head, neck, breast, and upper part of the back with metallic bronze borders; iris brown.

The sexes are similar.

Length, 12.25; wing, 6.20; tail, 7.50; tarsus, 1.50; bill, 1.10.

HABITAT. West Indies.

GENUS **Saurothera** VIEILL.

Saurothera VIEILLOT, "Analyse, p. 36, 1816."

Saurothera vetula (LINN.).

Cuculus vetula LINN. Syst. Nat. I, p. 169 (1766).

Saurothera jamaicensis LAFR. Rev. Zool. 1847, p. 354.

Saurothera vetula GOSSE, Bds. Jam. p. 273 (1847).—BP. Consp. I, p. 96 (1850).—ALBRECHT, J. f. O. 1862, 202.—SCL. Cat. Am. Bds. p. 323 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 283.—GRAY, Handl. Bds. II, p. 208 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 18 (1885).

Coccygus vetula SCHLEG. Mus. Pays-Bas, I, p. 39 (1864).

SP. CHAR.—Top of head, including the eye, dark olive brown; lighter brown on the nape; rest of back and wings light gray; throat white; breast and belly tinged with pale rufous; under surface of wings chestnut rufous; primaries chestnut rufous, tipped with pale olive; tail feathers, except central ones, bluish black, tipped with white.

The sexes are similar.

Length, 14.50; wing, 5; tail, 7.50; tarsus, 1; bill, 1.50.

HABITAT. Jamaica.

Saurothera dominicensis LAFR.

Saurothera dominicensis LAFR. Rev. Zool. 1847, p. 355.—SALLE, P. Z. S. 1857, p. 234.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).—

GRAY, Handl. Bds. II, p. 208 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 154 (1881); *ib.* Bds. Haiti & San Domingo, p. 98 (1885); *ib.* List Bds. W. I. p. 18 (1885)—TRISTRAM, Ibis, 1884, p. 168.

Coccygus dominicensis SCHLEG. Mus. Pays-Bas, I, p. 40 (1864).

SP. CHAR. *Male:*—Head, back, breast, and two central tail-feathers slate color, darkest on the head, where it sometimes shows a faint brownish tinge, and lightest, being almost ashy on the breast; wing-coverts and tertiaries slaty gray, showing pale greenish reflections when held in the light; primaries and some of the secondaries bright rufous brown, the first two edged with dull greenish, and all tipped with the same color; outer tail-feathers bluish, tipped with white, becoming dull olive at the base; two central tail-feathers tipped with black; throat and abdomen pale rufous; a bare space encircling the eye bright red; bill and legs slaty.

The sexes are similar.

Length, 15.50; wing, 5.50; tail, 9; tarsus, 1.40; bill, 1.60.

HABITAT. Haiti and San Domingo.

Saurothera vieilloti BP.

Saurothera vetula VIEILL. Nouv. Dict. XXXII, p. 348.—LAFR. Rev. Zool. 1847, p. 357.

Saurothera vieilloti BP. Consp. I, p. 97 (1850).—SCL. Cat. Am. Bds. p. 324 (1862). SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 599.—GRAY, Handl. Bds. II, p. 208 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 230 (1878).—CORY, List Bds. W. I. p. 18 (1885).

Saurothera vieilloti var. *rufescens* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 256 (1866).

SP. CHAR.—Entire upper surface pale olive brown; throat dull white, shading into gray on the breast; belly and under tail-coverts chestnut brown; tail olive, tipped with black, and narrowly edged on the tip with white; primaries having the outer webs pale olive, and and heavily marked with rufous on the terminal portions of the inner webs; secondaries showing distinctly olive green.

The sexes are similar.

Length, 16; wing, 5; tail, 8.50; tarsus, 1.05: bill, 1.40.

HABITAT. Porto Rico.

Saurothera merlini D'ORB.

Saurothera merlini D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 152 (1840).—BP. Consp. I, p. 97 (1850).—CAB. J. f. O. 1856, p. 104.—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 319 (1857).—BREWER,

Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 296 (1866); *ib.* J. f. O. 1874, p. 158.—GRAY, Handl. Bds. II, p. 208 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—CORY, List Bds. W. I. p. 18 (1885).

Coccygus merlini SCHLEG. Mus. Pays-Bas, I, p. 40 (1864).

SP. CHAR.—Very large. The head and back brown, with a tinge of olive, brightest on the head and rump; throat dull ashy white, shading distinctly ashy on the breast; rest of underparts pale chestnut brown; under surface of wings rufous; pale chestnut on the under coverts; primaries dark chestnut rufous, tipped with olive, showing slight metallic reflections; wing-coverts pale olive; two central tail-feathers dull olive, showing a brownish tinge on basal portions; rest of tail-feathers dull olive, showing a brownish tinge slightly on the inner webs, and having a subterminal band of black, tipped with white.

Length, 21; wing, 7.25; tail, 12; tarsus, 1.50; bill, 2.

HABITAT. Cuba.

Saurothera bahamensis BRYANT.

Saurothera vetula BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 106 (1859).

Saurothera bahamensis BRYANT, Pr. Bost. Soc. Nat. Hist. IX, p. 280 (1864).—CORY, Bds. Bahama I. p. 116 (1880); *ib.* List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—Above pale olive, showing slight greenish reflections; throat and breast dull grayish white; belly and crissum tawny; primaries mostly rufous; tail-feathers, except the two central ones, tipped with pale brownish white; legs slaty blue; soles of the feet yellow; eyelids vermillion red; upper mandible brownish, shading into slate color at the base; iris brown.

The sexes are similar.

Length, 18; wings, 6.25; tail, 9.50; tarsus, 1.50; bill, 1.80.

HABITAT. Bahamas.

GENUS Coccyzus VIEILL.

Coccyzus VIEILLOT, Analyse, p. 28, 1816.

Coccyzus americanus (LINN.).

Cuculus americanus LINN. Syst. Nat. I, p. 170 (1766).

Coccyzus carolinensis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 150 (1840).

Coccyzus americanus GOSSE, Bds. Jam. p. 279 (1847).—A. & E. NEWTON, Ibis, 1859, p. 146 (St. Croix).—BREWER, Pr. Bost. Soc. Nat. Hist.

VII, p. 307 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 202 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 295 (1866).—SCL. P. Z. S. 1866, p. 166 (Jamaica).—GUNDL. J. f. O. 1874, p. 156 (Cuba); *ib.* Anal. Soc. Esp. Hist. VII, p. 233 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 117 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).

Coccyzus dominicus MARCH. Pr. Acad. Nat. Sci. Phila. 1863, p. 154 (Jamaica).

Coccyzus bairdi SCL. P. Z. S. 1864, p. 120 (Jamaica).

Coccyzus americanus CAB. J. f. O. 1856, p. 104 (Cuba).—CORY, List Bds. W. I. p. 19 (1885).

This species occurs in the Bahama Islands, Cuba, Jamaica, and Porto Rico. It has also been recorded from St. Croix.

Coccyzus minor (GMEL.).

Cuculus minor GMEL. Syst. Nat. I, p. 411 (1788).

Cuculus seniculus LATH. Ind. Orn. I, p. 219 (1790).

Coccyzus seniculus VIEILL. Ency. Méth. p. 1346.—GOSSE, Bds. Jam. p. 281 (1847).—BP. Consp. I, p. 111 (1850).—SALLÉ, P. Z. S. 1857, p. 234.—NEWTON, Ibis, 1859. p. 150.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—CAB. & HEIN. Mus. Hein. IV, p. 78 (1861).—ALBRECHT, J. f. O. 1862, p. 202.—SCL. P. Z. S. 1864, p. 121.—PELZ. Orn. Bras. p. 273 (1871).

Coccyzus helviventris CAB. in Schomb. Guian. III, p. 714 (1848).

Coccygus minor BAIRD, Bds. N. Am. p. 78 (1858).—CAB. J. f. O. 1856, p. 104.—GUNDL. Repert. Fisico-Nat. Cuba I, p. 295 (1866).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 482 (1874).—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880); *ib.* CORY, VI, p. 154 (1881); *ib.* Bds. Haiti & San Domingo, p. 101 (1885); *ib.* List Bds. W. I. p. 19 (1885).

Coccyzus nesiotes CAB. & HEIN. Mus. Hein. IV, p. 78 (1861).—TAYLOR, Ibis, 1864. p. 121.

Coccyzus dominicus SCL. Cat. Am. Bds. p. 323 (1862).

Coccygus seniculus SCHLEG. Mus. Pays-Bas. I, p. 38 (1864).

Coccystes seniculus SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 599.

Coccyzus minor LÉOT. Ois. Trin. p. 353.—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 255 (1866).—SCL. P. Z. S. 1870, p. 166.—GUNDL. J. f. O. 1874, p. 157; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 231 (1878).—LAWR. Pr. U. S. Nat. Mus. I, pp. 62, 193, 234, 487 (1878).—CORY, Bds. Bahama I. p. 117 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—RIDGW. Pr. U. S. Nat. Mus. VII, p. 172 (1884).

SP. CHAR. *Male:*—Above grayish olive, tinged with ash on the head; underparts yellowish brown, darkest on the thighs, and becoming pale on the throat; a streak of dark brown behind the eye, passing

under it; quills and under wing-coverts yellowish brown; outer tail-feathers black, tipped with white, and showing slight bronze reflections; the others lighter, except the central ones, tipped with white; under mandibles yellow, except at the tip.

The sexes are similar.

Length, 11.80; wing, 5.20; tail, 6.50; tarsus, 1.08; bill, .90.

HABITAT. Bahamas and Antilles.

Coccyzus erythrophthalmus (WILS.).

Cuculus erythrophthalmus WILSON, Am. Orn. IV, p. 16 (1811).

Coccyzus erythrophthalmus LEMB. Aves Cuba, p. 73 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 295 (1866); *ib.* J. f. O. 1874, p. 157 (Cuba).

Coccyzus erythrophthalmus CAB. J. f. O. 1856, p. 104 (Cuba).—CORY, List Bds. W. I. p. 19 (1885).

Accidental in Cuba.

GENUS Hyetornis SCL.

Hyetornis SCLATER, Cat. Am. Bds. p. 321 (1862).

Hyetornis pluvialis (GMEL.).

Cuculus pluvialis GMEL. Syst. Nat. I, p. 411 (1788).

Piaya cinnamomeiventris LAFR. Rev. Zool. 1846, p. 321.—DES MURS. Icon. Orn. pl. 65.

Piaya pluvialis GOSSE, Bds. Jam. p. 277 (1847).—BP. Consp. I, p. 111 (1850).—SCL. P. Z. S. 1861, p. 79.—ALBRECHT, J. f. O. 1862, p. 203.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 283.

Hyetornis pluvialis SCL. Cat. Am. Bds. p. 321 (1862).—SCL. & SALV. Nom. Avium Neotr. p, 108 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 19 (1885).

Hyetormantis pluvialis CAB. J. f. O. 1862, p. 203.

Coccygus pluvialis SCHLEG. Mus. Pays-Bas. I, p. 39 (1864).

Hyetornis pluvianus GRAY, Handl. Bds. II, p. 212 (1870).

SP. CHAR.—Top of the head smoky brown; rest of the upper surface olive; throat dull white showing a tinge of chestnut; rest of underparts dark chestnut brown; under wing-coverts rufous chestnut; primaries dull olive brown, with a slight metallic tinge of green on the inner webs of the primaries and distinctly perceptible on the secondaries; tail dull black, showing a slight purplish tinge; all of the tail-feathers tipped with white.

The sexes are similar.

Length, 18; wing, 7; tail 10; tarsus, 1.60; bill, 1.25.

HABITAT. Jamaica.

Bucco cayennensis Sallé (P. Z. S. 1857, p. 234), from San Domingo, it is impossible to identify, as Sallé gives no description, and the genus does not occur in the West Indies.

FAMILY ALCEDINIDÆ.

GENUS **Ceryle** BOIE.

Ceryle BOIE, Isis, 1828, p. 316.

Ceryle stictipennis LAWR.

Ceryle torquata LAWR. Pr. U. S. Nat. Mus. I, pp. 459, 487 (1878).—CORY, List Bds. W. I. p. 19 (1885).

Ceryle stictipennis LAWR. Pr. U. S. Nat. Mus. VIII, p. 623 (1885).

"*Male.*—The upper plumage is ashy-blue, with a broad, pure white band across the hind neck, connecting with the white of the throat; lores black; a spot of white anterior to the eye, and another of the same color below it; the upper tail-coverts are colored like the back, and are barred on both webs with white; the two middle tail feathers are also colored like the back; the shafts are black, bordered narrowly on each side with deep black; they are conspicuously marked with triangular-shaped white spots on the middle of each web, these are nine in number on each side; the other tail feathers are black, with their outer edges colored like the back, and having pure white spots rounded in form on each web, those on the inner webs are much the largest; all the tail feathers are tipped with white; the quills are black, largely white on their inner webs and marked on the primaries with quadrate white spots on the outer ones, rather far apart; the secondaries have also small white spots on their outer webs, and on the inner webs large round spots, the outer webs are margined with ashy-blue; the tertiaries are largely ash-blue on their outer webs, spotted and barred with white, the inner webs are brownish-black and marked with large spots of white; the wing-coverts are like the back in color, the larger ones are sparsely marked with small white spots; the scapulars are narrowly barred with white; the under wing-coverts are white, largely intermixed with cinnamon color; the throat is white; the lower part of the neck, the breast, and the abdomen are of a very dark cinnamon color; the lower part of the abdomen, the flanks, crissum and under tail-coverts are white, closely spotted and barred with rather dull ashy-blue; the tarsi and toes are dark brown; the bill is black, with the basal half of the under mandible yellow.

"Length, fresh, 17 inches; wing, $7\frac{3}{4}$; tail, $5\frac{1}{2}$; bill, 3.

"*Habitat.*—Guadeloupe, West Indies. Type in my collection.

"*Female.*—The color above is similar to that of the male, but it has the entire back and wings marked sparsely with small white spots; in the markings on the head, wings, and tail they are much alike; it has the white throat and band on the hind neck as in the male; across the lower part of the throat and upper part of the breast there is a broad band of ashy-blue, minutely freckled with white; this band is bordered narrowly below with white; the entire under plumage besides, and the under wing-coverts are deep cinnamon.

"Length (skin), 17½ inches; wing, 8; tail, 5¾; bill, 3.

"The type of the female is in the National Museum, Washington, to which it was sent from Guadeloupe by Mr. L. Guesde." (LAWR., l. c., orig. descr.)

It has always been supposed that *Ceryle torquata* did not differ from the Guadeloupe species, but Mr. Lawrence considers the West Indian bird as new and has described it as above. The greatest difference seems to be the white spotting of the wings and back, and the rufous marking of the under wing-coverts. Were it not for the isolated position where it occurs it would represent a variety of *C. torquata*, but as we have no record of its occurrence elsewhere in the West Indies, and as it is claimed to be resident in Guadeloupe, intergradation seems hardly probable, still the Lesser Antilles are not, as yet, so well known as to justify us in saying *C. torquata* does not occur elsewhere in the West Indies.

Ceryle alcyon (LINN.).

Alcedo alcyon LINN. Syst. Nat. I, p. 180 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 130 (1840).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 255 (1866) (Porto Rico).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 585 (St. Bartholomew); *ib.* p. 600 (Porto Rico).

Ceryle alcyon GOSSE, Bds. Jam. p. 81 (1847).—SALLÉ, P. Z. S. 1857, p. 233 (San Domingo).—A. & E. NEWTON, Ibis, 1859, p. 67 (St. Croix).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 108 (1859) (Bahamas).—BREWER, *ib.* p. 306 (1860) (Cuba).—SCL. P. Z. S. 1861, p. 77 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 199 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 292 (1866).—LAWR. Pr. U. S. Nat. Mus. I, p. 62 (1878) (Dominica); *ib.* p. 193 (St. Vincent); *ib.* p. 292 (Grenada); *ib.* p. 359 (Martinique); *ib.* p. 459 (Guadeloupe).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 218 (1878) (Porto Rico).—SCL. P. Z. S. 1879, p. 765 (Montserrat).—ALLEN, Bull.

Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—CORY, Bds. Bahama I. p. 115 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881) (Haiti).—GRISDALE, Ibis, 1882, p. 486 (Montserrat).—CORY, Bds. Haiti & San Domingo, p. 103 (1885); *ib.* List Bds. W. I. p. 19 (1885).

Alcedo (*Ceryle*) *alcyon* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866) (San Domingo).

Common throughout the West Indies.

FAMILY TODIDÆ.

GENUS **Todus** LINN.

Todus BRISSON, Orn. IV, p. 528 (1760).— LINNÆUS, Syst. Nat. I, p. 198 (1766).

Todus viridis LINN.

Todus viridis LINN. Syst. Nat. I, p. 178 (1766).—GOSSE, Bds. Jam. p. 72 (1847).—DENNEY, P. Z. S. 1847, p. 38.—BP. Consp. I, p. 182 (1850).—ALBRECHT, J. f. O. 1862, p. 199. — SCL. Cat. Am. Bds. p. 263 (1862).—SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).—SHARPE, Ibis, 1874, p. 349.—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 19 (1885).

SP. CHAR.—Entire upper surface bright grass-green; throat bright red, the feathers showing delicate tippings of white when held in the light; a narrow stripe of white on each side of the throat, becoming grayish as it reaches the breast; breast dull white, strongly tinged with green; belly very pale yellow; a patch of pink on the sides of the body; primaries dark brown, narrowly edged with green; the inner primaries and secondaries having nearly the entire outer web green; under surface of tail brownish; upper surface of tail green.

The sexes are similar.

Length, 4.60; wing, 1.80; tail, 1.40; tarsus, .45; bill, .62.

HABITAT. Jamaica.

Todus angustirostris LAFR.

Todus angustirostris LAFR. Rev. Zool. 1851, p. 478.—SALLÉ, P. Z. S. 1857, p. 233—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1866).—SHARPE, Ibis, 1874, p. 352.—CORY, Bds. Haiti & San Domingo, p. 107 (1885); *ib.* List Bds. W. I. p. 19 (1885).

SP. CHAR. *Male:*—Above bright green; throat dark crimson; the feathers slightly touched with white; underparts white; flanks pinkish; under wing- and tail-coverts pale yellow; a line of white extending from the base of the mandible, separating the colors of the head and throat, becoming grayish as it reaches the sides of the neck; entire upper mandible and terminal half of lower mandible dark brown; legs black.

The sexes are similar.

Length, 4; wing, 1.90; tail, 1.50; tarsus, .45; bill, .60; width of bill at middle, .12.

HABITAT. San Domingo.

Todus subulatus GOULD.

Le Todier de St. Dominque, "BUFF. Pl. Enl. p. 585, figs. 1, 2 (1783)."
Todus viridis "VIEILL. Nouv. Dict. XXXIV, p. 184, pl. 29, fig. 4 (1819)."

Todus subulatus GOULD (Fig. sine descr.).—GRAY & MITCH. Gen. Bds. I, p. 63 pl. 22 (1847).—BP. Consp. I, p. 182 (1850).—GRAY, Handl. Bds. I, p. 79 (1869).—SHARPE, Ibis, 1874, p. 351.—TRISTRAM, Ibis, 1884, p. 168.—CORY, Bds. Haiti & San Domingo, p. 105 (1885); *ib.* List Bds. W. I. p. 19 (1885).

Todus dominicensis LAFR. Rev. Zool. 1847, p. 331.—SALLÉ, P. Z. S. 1857, p. 233.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI. p. 91 (1866).—SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 154 (1881).

SP. CHAR. *Male:*—Above bright green; throat crimson red, the feathers faintly tipped with white; underparts dull yellowish, the feathers edged with pale red on the basal portions, the color only slightly showing on the surface, and giving the chest and belly the appearance of being pale yellowish, faintly streaked with red; flanks pale pinkish red; wings dark brown, edged with green; tail green; crissum and under tail-coverts pale yellow; a line of dull white extending from the base of the mandible, separating the green of the head from the red of the throat; upper mandible dark brown; the tip of lower mandible dull brown.

The sexes are similar.

Length, 4.35; wing, 2.05; tail, 1.60; tarsus, .60; bill, .70; width of bill at middle, .20.

HABITAT. Haiti and San Domingo.

Todus pulcherrimus SHARPE.

Todus pulcherrimus SHARPE, Ibis, 1874, p. 353, pl. xiii, f. 3.—CORY, List Bds. W. I. p. 19 (1885).

"Above bluish-green, rather tinged with olive on the lower back, the wing-coverts showing a very strongly pronounced blue shade; quills blackish, bordered narrowly with light green, shading off into bluish towards the tips of the secondaries; tail dull greenish, with narrow margins of bluish green; forehead lighter and rather more olive-green than the back, and tinged with orange near the base of the beak; lores tinged with orange; sides of face yellowish green; sides of neck dull rufous; chin white; throat bright carmine, with silvery white margins to most of the feathers; rest of under surface with a light crimson blush, varied on the breast with white oval spots to the feathers, producing an ocellated appearance, the crimson colour brightest on the flanks, shading off into ochraceous buff on the sides of the vent; on each side of the upper breast a patch of greenish; under wing-coverts ochraceous buff, the outermost smaller coverts washed with pale carmine; upper mandible blackish, lower one yellowish; feet black.

"Total length, 3.5 inches; culmen, 0.85; wing, 1.9; tail, 1.4; tarsus, 0.65.

"HAB. Jamaica?

"This new species comes nearest to *T. subulatus* of S. Domingo, having, like that species, the white ocellations on the breast; but it differs from that bird and all other members of the genus by its brilliant coloration below, and by its being bluish green above.

"The type is in the British Museum." (SHARPE, l. c., orig. descr.)

Todus hypochondriacus BRYANT.

Todus viridis DESM. H. N. Tang. pl. 67.—VIEILL. Gal. Ois. I, pl. 124 (1825).

Todus mexicanus LESS. Ann. Soc. Nat. XI, p. 167.—LAFR. Rev. Zool. 1847, p. 333.—BP. Consp. I, p. 182 (1850).—BAIRD, Ibis, 1867, p. 260.

Todus hypochondriacus BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 250 (1866).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 598.—SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).—SHARPE, Ibis, 1874, p. 354.—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 219 (1878).—CORY, List Bds. W. I. p. 19 (1885).

SP. CHAR.—Entire upper plumage bright green; throat red, the feathers showing faint edgings of white when held in the light; a narrow stripe of white down the sides of the throat; cheeks green; breast grayish, becoming white on the belly; sides of the body and under tail-coverts yellow; a faint bluish tinge is perceptible on the carpus; under surface of tail dull brown; upper surface green.

Length, 4.75; wing, 1.75; tail, 1.10; tarsus, .50; bill, .60.

HABITAT. Porto Rico.

General appearance of *T. viridis*, but lacking the broad pink patch on the sides of the body. Some specimens show a slight pinkish tinge.

Todus multicolor GOULD.

Todus multicolor GOULD, Icon. Av. pl. 2 (1837).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 132 (1840).—BP. Consp. I, p. 182 (1850).—CAB. J. f. O. 1856, p. 101.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. J. f. O. 1871, p. 288; *ib.* 1874, p. 146.—SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).—SHARPE, Ibis, 1874, p. 352.—CORY, List Bds. W. I. p. 19 (1885).

Todus portoricensis LESS. Ann. Soc. Nat. XI, p. 167 (1838).—GRAY, Gen. Bds. I, p. 63 (1844).—LAFR. Rev. Zool. 1847, p. 332.—LEMB. Aves Cuba, p. 131 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

SP. CHAR.—Entire upper plumage grass-green; a tinge of yellow in front of the eye; cheeks pale blue; throat red, showing the faint whitish tippings when held in the light; breast dull white, becoming gray on the belly; sides of the body pale pink; under tail-coverts yellowish green; under surface of tail pale brown, showing a slight bluish reflection; upper surface of tail green.

Length, 3.80; wing, 1.50; tail, 1.25; tarsus, .50; bill, .55.

HABITAT. Cuba.

FAMILY PICIDÆ.

GENUS Picumnus TEMM.

Picumnus TEMMINCK, Nouv. Rec. de Pl. Col. d'Ois. IV, 1820–39.

Picumnus micromegas SUNDEV.

Chloronerpes passerinus SALLÉ, P. Z. S. 1857, p. 234.

Picus (Chloronerpes) passerinus BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).

Picumnus micromegas SUNDEV. Consp. Avi. Picin. p. 95 (1866).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).— TRISTRAM, Ibis, 1884, p. 167.

Picumnus lawrencei CORY, Bull. Nutt. Orn. Club, VI, p. 129 (1881); *ib.* Bds. Haiti & San Domingo, p. 109 (1885); *ib.* List Bds. W. I. p. 19 (1885).

SP. CHAR. *Male:*—Tail soft, composed of ten feathers; general plumage above olive green; forehead showing a tinge of black; top of the head bright yellow, cut by a band of red, again becoming yellow at the base; underparts yellowish, palest on the throat, mottled and streaked with brown feathers; on the sides of the neck marked with dull white, nearly joining above, forming an imperfect collar; wing-coverts and outer webs of primaries and secondaries olive green; inner webs brown, becoming pale on the edges; bill, legs, and feet dark slate color; iris reddish brown.

The adult female differs from the male in wanting the red band on the head.

Length, 5.10; wing, 2.75; tail, 1.85; tarsus, .70; bill, .62.

HABITAT. Haiti and San Domingo.

GENUS **Campephilus** GRAY.

Campephilus GRAY, List Gen. Bds. p. 54 (1840).

Campephilus principalis bairdi.

Campephilus principalis Cab. J. f. O. 1856, p. 102.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

Campephilus bairdii CASSIN, Pr. Acad. Nat. Sci. Phila. 1863, p. 322.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 293 (1866);—*ib.* J. f. O. 1874, p. 148.

Campephilus principalis var. *bairdi* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 496 (1874).

Campephilis principalis bairdi CORY, List Bds. W. I. p. 19 (1885).

"Much resembling *C. principalis*, but smaller and with the black anterior feathers of the crest larger than those succeeding, which are scarlet. White longitudinal line on the neck reaching quite to the base of the bill. In *C. principalis* the scarlet plumes of the crest are the longer, and the line on the neck does not extend to the base of the bill, both of which characters are very accurately shown in Audubon's plates B. of Am. pl. 66, and oct. ed. IV, pl. 256. Colors of all other parts in the present bird are the same as those of *C. principalis*.

"Total length about 18½ inches, wing, 9¼, tail, 6¾ inches." (CASSIN, l. c., orig. descr.)

HABITAT. Cuba.

I have now before me eighteen examples of *C. principalis* and two of *C. bairdi*, and have examined three other specimens of the latter bird. In none of the Cuban birds does the white cheek stripe quite reach the bill and in most of them it lacks a quarter of an inch or more. Some examples of *C. principalis* show the white stripe *nearly* as long as the Cuban form. The length of this stripe is quite variable in the series from Florida. The "black anterior feathers of the crest" do not appear to be a constant character, as two examples of *C. principalis* from Florida show it as much as any Cuban specimens which I have seen.

In Dr. Gundlach's private museum at Ingenio Fermina, Cuba, I had the pleasure of seeing a most curious *C. bairdi*, which might well be called an ornithological monstrosity. The bird was perfect in every respect with the exception of the upper mandible, which had grown to the enormous length of nearly twelve inches, curving downward and passing the body on the left side, as shown in the accompanying figure.

GENUS **Dryobates** BOIE.

Dryobates BOIE, Isis, 1826, p. 977.

Dryobates villosus insularis.

Picus villosus BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 106 (1859).—CORY, Bds. Bahama I. p. 120 (1880).
Picus insularis MAYN. The Nat. in Florida, I, No. 4 (1885).
Picus villosus insularis CORY, List Bds. W. I. p. 19 (1885).

SP. CHAR. *Male:*—Above black, with a white band down the middle of the back, finely lined with black; all the quills, middle and larger wing-coverts with numerous spots of white; crown black; a patch over the eye, and a stripe from the mandible to the nape white; a black stripe from the eye, passing through the cheeks, over the nape, and joining the black of the back; a scarlet crescent around the base of the skull, joining the white superciliary stripe; underparts ashy, with the sides mottled and striped with black; two outer tail-feathers white, edged and tipped with pale brown; third black, with a patch of pale brown upon the outer web, the others black.

Female:—The scarlet crescent wanting, replaced by white.

Length, 7.25; wing, 4.20; tail, 3; tarsus, .70; bill, 1.

HABITAT. Northern Bahama Islands.

This form differs from *P. villosus* in the greater extent of white in front of the eye, the black streaks on the sides of the breast, and black shaft-lines on the white feathers of the back.

GENUS **Sphyrapicus** BAIRD.

Sphyrapicus BAIRD, Bds. N. A. p. 101 (1858).

Sphyrapicus varius (LINN.).

Picus varius LINN. Syst. Nat. I. p. 176 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 141 (1840).—GOSSE, Bds. Jam. p. 270 (1847).—CAB. J. f. O. 1856, p. 102 (Cuba).—NEWTON, Ibis, 1859, p. 308 (St. Croix).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 106 (1859) (Bahamas); *ib.* BREWER, p. 396 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 202 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 284 (Jamaica).
Sphyrapicus varius GUNDL. Repert. Fisico-Nat. Cuba, I, p. 294 (1866); *ib.* J. f. O. 1874, p. 150 (Cuba).—CORY, Bds. Bahama I. p. 121 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 20 (1885).
Picus (*Sphyropicus*) *varius* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 65 (1867) (Bahamas).

Recorded from the Bahama Islands, Jamaica, Cuba, and St. Croix.

GENUS **Xiphidiopicus** BONAP.

Xiphidiopicus BONAPARTE, "Consp. Vol. Zygodact. p. 11 (1854)."

Xiphidiopicus percussus (TEMM.).

Picus percussus TEMM. Pl. Col. pp. 390, 424 (1820–39).—VIGORS, Zool Journ. III, p. 444 (1827).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 143 (1840).—THIENE. J. f. O. 1857, p. 153.

Dendrobates percussus GRAY, Gen. Bds. II, p. 437 (1844–49).

Chloropicus percussus MALH. Mém. Acad. Metz, 1848–49, p. 352.

Picus ruppellii WAGL. Syst. Av. sp. 29 (1827).

Chloronerpes percussus BP. Consp. I, p. 118 (1850).—CAB. J. f. O. 1856, p. 102.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 294 (1866); *ib.* J. f. O. 1874, p. 151.

Xiphidiopicus percussus BP. Consp. Vol. Zygodact. p. 11 (1854).—SCL. Cat. Am. Bds. p. 339 (1862).—GRAY, Handl. Bds. II, p. 199 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 100 (1873).—Cory, List Bds. W. I. p. 20 (1885).

SP. CHAR.—Forehead dull white, extending in a superciliary stripe down the sides of the head to the neck; top of the head bright red; a narrow stripe of smoky black passing from the eye down the sides of the neck; a narrow stripe of black on the centre of the throat from the chin, succeeded on the lower throat and upper breast by a broad patch of red; sides of throat dull white; back and upper surface of wings yellowish green; middle portion of breast pale yellow; feathers on the sides of the body barred with smoky black and white, showing a tinge of yellow; primaries dark brown, blotched with dull white on the edges of the webs; inner primaries and secondaries heavily edged with pale green on the outer web; two central tail-feathers dull black, showing a silvery tinge when held in the light; under surface of the tail showing feathers with narrow alternate bands of gray and pale brown.

The female differs from the male in having the top of the head black, the feathers showing narrow shaft lines of white; the red restricted to the base of the skull.

Length, 9; wing, 5; tail, 3.50; tarsus, .80; bill, .90.

HABITAT. Cuba.

GENUS **Melanerpes** SWAINS.

Melanerpes SWAINSON, F. B. A. II, 1831.

Melanerpes portoricensis (DAUD.).

Picus portoricensis DAUD. Ann. du Mus. II, p. 383, pl. 51 (1803).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 256 (1866).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 599.

Picus rubidicollis VIEILL. Ois. Am. Sept. II, p. 63, pl. 117 (1807).—TEMM. Cat. Syst. p. 210 (1807).

Melanerpes rubidicollis GRAY, Gen Bds. II, p. 444 (1844-49).—BP. Consp. I, p. 115 (1850).

Melanerpes portoricensis A. & E. NEWTON, Ibis, 1859, p. 377.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—SCL. Cat. Am. Birds, p. 34: (1862).—TAYLOR, Ibis, 1864, p. 170.—SCL. & SALV. Nom. Avium Neotr. p. 100 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 227 (1878).—CORY, List Bds. W. I. p. 20 (1865).

Melampicus portoricensis MALH. Mon. Pic. II, p. 205 (1862).

Asyndesmus portoricensis GRAY, Handl. Bds. II, p. 201 (1870).

SP. CHAR. *Male:*—Entire upper surface black with greenish reflections; forehead dull white, reaching and nearly encircling the eye; throat, breast, and underparts dull crimson red, mixed with brownish on the sides of the body; a spot of white near the carpus; rump white; wings and tail brownish black.

Length, 7.50; wing, 5; tail, 3; tarsus, .90; bill, 1.

HABITAT. Porto Rico and St. Thomas.

Melanerpes l'herminieri (LESS.).

Picus hermanieri LESS. Traité Orn. p, 228 (1831).

Melampicus hermanieri MALH. Mém. Acad. Metz, 1848-49, p. 365.

Linnæipicus herminieri MALH. N. Class. Pic. p. 53 (1850).—BP. Consp. Vol. Zygodact. sp. 255 (1854).

Melanerpes hermanieri BP. Consp. I, p. 515 (1850).—REICH. Handb. p. 381 (1853).

Linneopicus hermanieri GRAY, Cat. Gen. Bds. p. 93 (1855).

Melanerpes l'herminieri SCL. & SALV. Nom. Avium Neotr. p. 100 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 459 (1878).—CORY, List Bds. W. I. p. 20 (1885).

SP. CHAR. *Male:*—General plumage black, showing a steel blue gloss on the back when held in the light; feathers on the breast tinged with dull red; a faint reddish tinge is perceptible on the forehead.

Female:—Similar to the male, perhaps smaller, and lacks the tinge of red on the forehead, although the reddish tinge on the forehead of the male is possibly not constant.

Length (skin), 10; wing, 5.50; tail, 4; tarsus, 1; bill, 1.25.

HABITAT. Guadeloupe.

GENUS **Centurus** SWAINS.

Centurus SWAINSON, Class. Birds, II, p. 310, 1837.

Centurus striatus (MÜLL.).

Picus dominicensis, striatus, "BRISS. Orn. IV, p. 65, pl. 4, fig. 2 (1760) (♂ ad)."

Picus dominicensis "BRISS. t. c. pl. 3, fig. 2 (♀ ad)."

Le Pic rayé de St. Dominique "BRISS. Orn. IV, p. 65, pl. 4, fig. 1 (1760) (♂ ad).

Picus striatus MÜLL. Syst. Nat. Suppl. (1766).—GMEL. Syst. Nat. I, p. 427 (1788).—CUV. Rég. An. I, p. 451 (1829).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).

Centurus striatus GRAY, Gen. Bds. II, p. 442 (1844-49).—BP. Consp. I, p. 119 (1850).—SALLÉ, P. Z. S. 1857, p. 234.—SCL. & SALV. Nom. Avium Neotr. p. 100 (1873).—RIDGW. Pr. U. S. Nat. Mus. IV, p. 117 (1881).—CORY, Bull. Nutt. Orn. Club, VI, p. 154 (1881); *ib.* Bds. Haiti & San Domingo, p. 111 (1885); *ib.* List Bds. W. I. p. 20 (1885).—TRISTRAM, Ibis, 1884, p. 168.

Zebrapicus striatus MALH. Mon. Pic. II, p. 231 (1862).

SP. CHAR. *Male:*—Underparts yellowish green, showing a tinge of brownish olive on the breast, and gray on the throat; forehead and sides of the head gray; a patch of bright crimson red extending from the forehead to the nape, covering nearly the entire top of the head; rump crimson red; back alternately banded with black and yellowish green; upper surface of wings having the appearance of the back, except that they are alternately banded with black and yellow; upper surface of tail dark brown; bill and feet dark slate color.

Female:—Top of head black; the nape showing bright crimson red, which encroaches slightly upon the back of the head; rest as in the male.

Length, 9; wing, 4.60; tail, 3.60; tarsus, .90; bill, 1.20.

HABITAT. Haiti and San Domingo.

Centurus radiolatus (WAGL.).

Picus varius medius jamaicensis RAY, Syn. Av. p. 181, No. 11.

Picus jamaicensis EDW. Gleanings, Pl. 244 (♂ ad.).

Pic varié Femelle de la Jamaique BUFF. Pl. Enl. p. 597 (♂ ad.).

Picus carolinus, part. LINN. Syst. Nat. I, p. 175 (1766).

Picus radiolatus WAGL. Syst. Av. No. 59 (1827); *ib.* Isis, 1829, p. 572.

Centurus radiolatus GOSSE, Bds. Jam. p. 271 (1847).—BP. Consp. I, p. 118 (1850).—REICH. Handb. p. 409 (1854).—SCL. Cat. Am. Bds. p. 343 (1862).—ALBRECHT, J. f. O. 1862, p. 203.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—SCL. & SALV. Nom. Avium Neotr. p.

100 (1873).—RIDGW. Pr. U. S. Nat. Mus. IV, p. 111 (1881).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 20 (1885).

Zebrapicus radiolatus MALH. Mon. Pic. II. p. 237 (1862).

SP. CHAR. *Male:*—Forehead and throat dull white; crown bright red; breast smoke gray, becoming yellowish-olive on the underparts; a faint reddish tinge near the vent, sometimes lacking; back black, the feathers delicately barred with dull white; rump black, barred with white; tail black, the inner webs of the two central feathers delicately barred with white; wings black, showing numerous dottings of white on the secondaries and the basal portions of the outer webs of some of the primaries.

Female:—Forehead white; top of the head smoky-brown; a band of red at the base of the skull; otherwise similar to the male.

Length, 10.50; wing, 5; tail, 3.50; tarsus, .90; bill, 1.25.

HABITAT. Jamaica.

Centurus superciliaris (TEMM.).

Picus superciliaris TEMM. Pl. Col. IV, p. 433 (1820–39).—CUV. Rég. An. p. 451 (1829).—WAGL. Isis, 1829, p. 515.—LESS. Traité d'Orn. p. 227 (1831).—THIENE. J. f. O. 1857, p. 153.

Colaptes superciliaris VIG. Zool. Journ. III, p. 445 (1827).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 146 (1840).

Colaptes superciliosus GRAY, Gen. Bds. II, p. 446 (1844–49).

Centurus superciliaris BP. Consp. I, p. 118 (1850).—REICH. Handb. p. 408 (1854).—GUNDL. J. f. O. 1856, p. 103; *ib.* 1874, p. 152.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—SCL. Cat. Am. Bds. p. 342 (1862).—SCL. & SALV. Nom. Avium Neotr. p. 101 (1873).—RIDGW. Pr. U. S. Nat. Mus. IV, p. 115 (1881).—CORY, List Bds. W. I. p. 20 (1885).

Zebrapicus superciliaris MALH. Mém. Acad. Metz, 1848–49, p. 361.

SP. CHAR. *Male:*—Forehead white, showing a faint tinge of orange red at base of the upper mandible; crown deep red, the color extending to the nape; a patch of black over and back of the eye; rest of head and throat dull grayish white; breast yellowish olive, becoming distinctly yellowish on the belly; a patch of deep red on the middle of the belly; back and wings heavily banded with black and white, showing a faint yellowish tinge on the back; primaries dark brown, narrowly tipped with white on the fifth and sixth; the two central tail-feathers heavily banded with black and white; the outer tail-feathers banded with black and white near the tip; rest of tail-feathers faintly tipped with white; bill black; feet black.

Female:—Similar to the male, but having top of the head white

succeeded by a band of dull black, which is in turn replaced by red on the base of the skull, extending to the nape.

Length, 11.50; wing, 5.80; tail, 4; tarsus, 1; bill, 1.50.

HABITAT. Cuba.

GENUS **Colaptes** SWAINS.

Colaptes SWAINSON, Zool. Journ. III, p. 353, Dec. 1827.

Colaptes chrysocaulosus GUNDL.

Colaptes chrysocaulosus GUNDL. Ann. N. Y. Lyc. Nat. Hist. VI, p. 273 (1858).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—ALBRECHT, J. f. O. 1861, p. 210.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 294 (1866); *ib.* J. f. O. 1874, p. 153.—SCL. & SALV. Nom. Avium Neotr. p. 101 (1873).—CORY, List Bds. W. I. p. 20 (1885).

Colaptes auratus CAB. J. f. O. 1856, p. 103.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

Colaptes auratus var. *chrysocaulosus* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 575 (1874).

SP. CHAR. *Male:*—Top of head gray; a nuchal patch of red; a malar stripe of black; sides of the head and throat pale chocolate; a patch of black on the breast; underparts dull yellowish white, heavily spotted with black; upper surface pale chocolate brown, banded with black; upper surface of primaries brown, having the shafts bright yellow; under surface of wings pale yellow; tail dark brown, some of the feathers showing narrow bands on the edges; under surface of tail yellow, feathers tipped with black; bill black and feet dark brown.

The female resembles the male, but differs from it in lacking the black malar stripe, having the throat and sides of the head entirely pale chocolate brown.

Length, 10.50; wing, 5.40; tail, 4.50; tarsus, .80; bill, 1.20.

HABITAT. Cuba.

GENUS **Nesoceleus** SCL. & SALV.

Nesoceleus SCLATER & SALVIN, App. Nom. Avium Neotr. p. 155 (1873).

Nesoceleus fernandinæ (VIG.).

Colaptes fernandinæ VIG. Zool. Journ. 1827, p. 445.—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 148 (1840).—CAB. J. f. O. 1856, p. 104.—BREWÉR, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 295 (1866); *ib.* J. f. O. 1874, p. 155.—GRAY, Handl. Bds. II, p. 202 (1870).

Picus fernandinæ WAGL. Isis, 1829, p. 517.

Colaptes fernandina DENNY, P. Z. S. 1847, p, 39.
Geopicus fernandinæ MALH. Mém. Acad. Metz, 1848-49, p. 359; *ib.* Mon. Pic. II, p. 273 (1862).
Colaptes fernandiæ REICH. Handb. Orn. p. 415, No. 975 (1854).
Nesoceleus fernandinæ SCL. & SALV. Nom. Avium Neotr. p. 101 (1873).—CORY, List Bds. W. I. p. 20 (1885).

SP. CHAR. *Male:*—Top of the head pale yellowish brown, each feather having a central stripe of dark brown, giving the head a delicate striped appearance; a space around the eye, extending beyond the ear-coverts, pale rufous brown; a stripe of black passes from the under mandible down the sides of the throat; chin and throat black, the feathers edged with yellowish white; rest of plumage having the feathers banded with yellow and dark brown, brightest on the underparts; under wing-coverts pale yellow, somewhat marked with brownish; wings and tail dark brown, thickly banded with yellow; under surface of wings and tail showing the shafts of the feathers clear pale yellow, the shafts being brown on the upper surface.

Female:—Similar to the male, but having the head and cheeks browner, and lacking the black stripe on the side of the throat.

Length (skin), 12; wing, 6. 25; tail, 5; tarsus, 1; bill, 1.60.

HABITAT. Cuba.

(*To be continued.*)

DESCRIPTIONS OF NEW SPECIES OF BIRDS FROM THE WEST INDIES.

BY CHARLES B. CORY.

Thryothorus guadeloupensis, sp. nov.

SP. CHAR.—Upper parts dark brown, showing darkest on the head; wing-coverts tipped with rufous brown; primaries and secondaries dark brown, the outer webs mottled with reddish brown, showing pale indistinct bands on some of the inner secondaries; entire underparts tawny brown; under tail-coverts tawny, heavily marked with dark brown; bill yellowish brown, under mandible quite pale; legs and feet pale; iris yellow.

The tail of the specimen above described is lacking.

Length, —; wing, 1.95; tarsus, .78; bill, .75.

HABITAT. Grand Terre, Guadeloupe, West Indies.

Loxigilla richardsoni, sp. nov.

SP. CHAR.—Entire plumage dull black; *no* trace of rufous brown on the throat or above the eye; under wing-coverts dull black; inner web of outer tail-feather dark brown; legs and feet apparently pale.

Length (skin), 5.10; wing, 2.85; tail, 1.95; tarsus, .95; bill, .50.

HABITAT. Mountains of Santa Lucia, West Indies.

The bird here described was procured in Santa Lucia by Mr. W. E. Richardson (for whom I have named it), with a lot of skins from a native living in the interior of the island. Mr. Richardson claims to have seen the bird alive, but was unable to obtain other specimens, as at the time of his visit to the island all shooting was prohibited by the authorities.

Loxigilla barbadensis, sp. nov.

SP. CHAR. *Male.*—General appearance of the female of *L. noctis*. Upper parts dull olive brown; underparts ashy brown, palest on the throat; under tail-coverts pale rufous brown; a faint tinge of reddish brown is sometimes perceptible on the throat and in front of the eye, but is not constant, and is lacking in several specimens. Quills brown, the outer webs edged with brownish-white; wing-coverts edged with red-brown; tail olive brown, showing numerous nearly obsolete bands when held in the light; bill and feet dark brown, the latter nearly black.

Length (skin), 5; wing, 2.75; tail, 2; tarsus, .75; bill, .45.

The sexes are apparently similar.

HABITAT. Barbadoes, West Indies.

I do not know of a black *Loxigilla* having been taken in Barbadoes. Mr. Richardson procured a good series from that island and claims that black examples do not exist there.

DESCRIPTION OF A NEW GENUS OF TYRANNIDÆ FROM SANTO DOMINGO.

BY ROBERT RIDGWAY.

Lawrencia, gen. nov.

GEN. CHAR.—Wing very much rounded, the first quill shortest, the second quill not longer than secondaries, and fifth and sixth longest; longest primaries exceeding secondaries by less than the distance from tip of second to that of longest quill; distance from tip of first quill to that of

the longest considerably greater than the length of the tarsus. Tarsus long (about twice the length of the exposed culmen), the posterior face, on both sides, "booted." Bill small, much depressed, triangular, the lateral outlines slightly concave; distinctly notched, the rictal bristles strong; length of bill from nostril about equal to its width at base. Tail nearly as long as the wing, slightly rounded. Color olive above, browner on remiges and rectrices, grayer on head, the wing-coverts with two whitish bands; lower parts whitish, tinged with sulphur-yellow, laterally and posteriorly.

Type, *Empidonax nanus* Lawrence.

The type of this genus is exceedingly different in structure from any of the species of *Empidonax*, as shown by the above diagnosis. In general coloration, it resembles some of the species of *Empidonax*, and also some of the Vireones, especially *V. bellii*.

This new form is dedicated to Mr. George N. Lawrence, of New York City, America's veteran ornithologist, as a slight token of esteem, and also in recognition of his important services to Neotropical ornithology.

ON THE AVI-FAUNA OF PINAL COUNTY, WITH REMARKS ON SOME BIRDS OF PIMA AND GILA COUNTIES, ARIZONA.

BY W. E. D. SCOTT.

With annotations by J. A. Allen.

(*Continued from page 258.*)

II.

1. **Podilymbus podiceps.** PIED-BILLED GREBE.—The only specimens of this species that I am aware of occurring in the region under discussion, were taken by Mr. Herbert Brown of Tucson, near that place on the 18th of February, 1886. They are two in number; one an immature bird and the other almost in full plumage.

2. **Urinator lumme.** RED-THROATED LOON.—A Papago Indian brought into the reservation near Tucson on December 20, 1884, an individual of this species. It was apparently exhausted, and falling in the grass was unable to rise again. It proved to be an immature male, and is now in the collection of Mr. Herbert Brown. This is the only record I am aware of from this immediate vicinity.

3. **Merganser americanus.** AMERICAN MERGANSER.—During a visit to the San Pedro River, January 27 to 29 inclusive, of the present year, I noted this species as rare. One female was taken and three males seen. Mr. Brown has no records from about Tucson, nor have I ever noticed it in the markets of that place.

4. **Lophodytes cucullatus.** HOODED MERGANSER.—An immature female, taken by Mr. Brown near Tucson, on December 5, 1885, is the only record of the species that I know of.

5. **Anas boschas.** MALLARD.—This is one of the commonest Ducks about Tucson, during late fall and winter, leaving early in the spring, Mr. Brown tells me. I found it not uncommon, on the San Pedro on March 1, 1885, and it was one of the most abundant Ducks at the same point, January 27 to 29 of the present year.

6. **Anas strepera.** GADWALL.—The only occurrence of this species that has come under my observation is a female, secured by Mr. Brown, near Tucson, on December 20, 1886, and now in that gentleman's collection.

7. **Anas americana.** BALDPATE.—This species was not uncommon on the San Pedro River, in small flocks, never exceeding six individuals, during a visit to that point from January 27 to 29 inclusive, 1886.

8. **Anas carolinensis.** GREEN-WINGED TEAL.—"Abundant about Tucson at times during the winter; notably so, from about February 5 to 19 of the present year." (MS. note from Mr. Herbert Brown.) It was apparently rare on the San Pedro during my visits of the past winter.

9. **Anas discors.** BLUE-WINGED TEAL.—"Uncommon about Tucson" (*Herbert Brown*). A few were observed during visits made to the San Pedro River during the past winter.

10. **Anas cyanoptera.** CINNAMON TEAL.—"A common migrant, coming early in the fall and remaining till late in the spring, about Tucson" (*Herbert Brown*). I have not observed it on the San Pedro or on the Gila at Riverside, but have taken it about Tucson as late as April 26, when the birds were still in flocks.

11. **Spatula clypeata.** SHOVELLER.—"Rather common about Tucson in winter" (*Herbert Brown*). Two representatives that I have seen in the markets and in Mr. Brown's collection are in immature plumage, or were beginning, late in February, to assume the breeding plumage.

12. **Dafila acuta.** PINTAIL.—This species I noticed as not uncommon on the San Pedro in early March, 1885.

13. **Aythya americana.** REDHEAD.—"Common about Tucson in winter" (*Herbert Brown*). Very common in flocks of from six to ten individuals on the San Pedro River at a point about ten miles from American Flag, from January 27 to 29 inclusive, 1886.

14. **Aythya vallisneria.** CANVAS BACK.—A small flock of about eight individuals noted on the San Pedro on January 28, 1886, and a female taken. I have no absolute record from about Tucson.

15. **Aythya marila nearctica.** AMERICAN SCAUP DUCK.—Rather common on the San Pedro in winter.

16. **Aythya affinis.** LESSER SCAUP DUCK.—A few seen on the San Pedro during late January of the past winter.

17. **Charitonetta albeola.** BUFFLE-HEAD.—"Uncommon about Tucson in winter. My only record is an adult male taken December 5, 1885" (*Herbert Brown*). I took a female, a bird of the year, on the San Pedro, January 27, 1886, which is my only record of the species from this region.

18. **Erismatura rubida.** RUDDY DUCK.—Not uncommon at times about Tucson, but generally in immature plumage. Mr. Brown has similar records of its occurrence, but I have not met with it on the San Pedro.

19. **Branta canadensis.** CANADA GOOSE.—I saw a small flock of three in a pond near the San Pedro on January 27, 1886. This is my only record.

20. **Plegadis autumnalis.** GLOSSY IBIS.—Mr. Brown says that this species is not infrequent about the bottom lands of the Santa Cruz, near Tucson, both in the fall and spring. I have never met with it myself, but have seen a skin of this species in Mr. Brown's collection.

21. **Plegadis guarauna.** WHITE-FACED GLOSSY IBIS.—A much more common species than the last, according to my own experience. I have found it common in May, in the vicinity of Tucson, in pairs, and in flocks of from six to fifteen individuals. At such times the birds were tame and unsuspicious.

22. **Tantalus loculator.** WOOD IBIS.—Rather common on the Gila and San Pedro Rivers for most of the year, and particularly so in the later months of the summer.

23. **Botaurus lentiginosus.** AMERICAN BITTERN.—Mr. Brown tells me this bird is rare about Tucson. He has but one specimen in his collection. The only personal record of it is a male taken on the San Pedro River, January 29, 1886.

24. **Ardea herodias.** GREAT BLUE HERON.—A resident species, and rather common. My records are from Riverside, Mineral Creek, and the San Pedro region, and also about Tucson. The Mineral Creek record is perhaps of special interest, as the bird was taken far from water and had evidently been feeding on a species of land lizard. This was in September, 1882. They were abundant on the San Pedro in late January of this year.

25. **Ardea egretta.** AMERICAN EGRET.—Rather common about Tucson in May, which is the only season that I have records of its occurrence, nor have I met with it in other localities.

26. **Ardea candidissima.** SNOWY HERON.—Only noted about Tucson in May, where I saw a flock of five and took one.

27. **Ardea virescens.** GREEN HERON.—"Rather rare about Tucson" (*Herbert Brown*). Also noticed by the same gentleman on the Salt River, near Tempe. I have no other records of its occurrence.

28. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON.—"Rather rare about Tucson" (*Herbert Brown*). I have many records of it on the Santa Cruz in May, 1883.

29. **Rallus virginianus.** VIRGINIA RAIL. I saw a Rail on the San

Pedro on January 28, 1886, which I was unable to procure, but feel very positive as to its identity as above.*

30. [**Porzana carolina**. CAROLINA RAIL.—Mr. Herbert Brown has kindly sent me an example of this species taken by him at Tucson, April 18, 1886.—J. A. A.]

31. **Galinula galeata**. FLORIDA GALLINULE.—"Not uncommon about Tucson" (*Herbert Brown*). I have records of it as being rare on the San Pedro in late January.

32. **Fulica americana**. Common, except during summer, wherever suitable localities present themselves. I have notes of its occurrence about Tucson in late May and early June in pairs. Abundant on the San Pedro in late January, 1886.

33. **Phalaropus tricolor**. WILSON'S PHALAROPE.—Common during the migrations about Tucson. Mr. Brown's experience agrees with the above statement.

34. **Recurvirostra americana**. AMERICAN AVOCET.—"Common at times during the fall migration, near Tucson" (*Herbert Brown*).

35. **Gallinago delicata**. WILSON'S SNIPE.—Common about Tucson during the migrations, and a few spend the winter both at this point and in the San Pedro River region, indicated on the accompanying map.

36. **Tringa minutilla**. LEAST SANDPIPER.—Mr. Brown says this species is common about Tucson during the spring and fall migrations, and I have also met with it at these times.

37. **Tringa alpina pacifica**. RED-BACKED SANDPIPER.—I saw flocks of this species and took representatives, during the latter part of April, 1883, near Tucson.

38. **Ereunetes occidentalis**. WESTERN SANDPIPER.—Spring and fall, but most common in the former season, about Tucson.

39. (?) **Limosa fedoa**. MARBLED GODWIT.—A Godwit noted on January 27, 1886, on the San Pedro River, I can refer only to this species. I was very close to the bird, which was alighted, but unfortunately had no means of procuring it.

40. **Totanus melanoleucus**. GREATER YELLOW-LEGS.—My only record of this species was given me by Mr. Brown, who took two male birds of the year near Tucson on October 29, 1884. These are now in his collection.

41. **Totanus solitarius**. SOLITARY SANDPIPER.—Not uncommon about Tucson during the migrations. This is the mutual experience of Mr. Brown and myself.

42. **Actitis macularia**. SPOTTED SANDPIPER.—Occasional about Tucson in spring.

43. **Numenius longirostris**. LONG-BILLED CURLEW. "Not common during the migrations about Tucson" (*H. Brown*). I have no records in regard to the species.

44. **Ægialitis vocifera**. KILLDEER.—Common about Tucson and on

* [I am indebted to Mr. Herbert Brown for a specimen of this species, an adult male, taken by him at Tucson, April 11, 1886.—J. A. A.]

the San Pedro, in spring and fall, and breeds in small numbers in the San Pedro region.

45. **Ægialitis semipalmata.** SEMIPALMATED PLOVER.—This species is doubtless common in the migrations about Tucson, where my only record was made in April, 1883, when I saw many.

46. **Colinus ridgwayi.** MASKED BOB-WHITE.—My personal experience with the 'Bob-white' of Arizona is limited to having seen and carefully examined all the material that Mr. Herbert Brown has acquired, which, I believe, with the exception of the type of the male bird taken by Mr. F. Stephens in Sonora, and described by Mr. Brewster, embraces *all* of the known specimens of the species now in collections.

Perhaps it may as well be said in this connection, though I believe it is already recorded, that previous to Mr. Stephens's Sonora trip, Mr. Brown had become aware that there was a 'Bob-white' in Arizona, and that he showed me two mummies of the species during the spring preceding Mr. Stephens's Sonora trip. And finally all of the United States records of the species, so far as I am aware, are due to the careful study and work of Mr. Brown. Up to the early part of the present year this record only embraced five individuals, but during the early spring past, Mr. Brown procured not only a considerable series of male birds, that must in certain features modify the original description from the single bird obtained by Mr. Stephens, but also a series of the female bird, which was up to that time unknown, save from a somewhat imperfect bird that had not been dissected. These birds have all been forwarded to Mr. Allen for more complete description than we have had up to the present time. For a description, so far as known, of the habits of the species I refer to Mr. Brown's paper published in 'Forest and Stream' (Vol. XXV, p. 445, December 31, 1885).*

47. **Callipepla squamata.** SCALED PARTRIDGE.—This Quail is almost as abundant on the dry mesas of the San Pedro slope of the Santa Catalina Mountains, up to an altitude of 3500 feet, as its congener *C. gambeli.* It affects a more open country, however, though I have often seen flocks of Quails where the two species were represented in about equal proportions. In other localities as, for instance, near the Cottonwood Spring, indicated on the map, it is very abundant in larger flocks, almost to the exclusion of *C. gambeli.* The little valley to the west of the Santa Catalina range, where the road passes down from Old Camp Grant to Tucson, is inhabited by both species in great abundance, and here, too, I have seen flocks composed of the two associating apparently on the most friendly terms. About Riverside the birds were very rare, nor did I find them at Mineral Creek, but just about Florence they are common, and near Tucson they are frequently to be met with. South of Tucson, in the neighborhood of Quijotoa and on the plains about Barboquivari, Mr. Brown says the species is particularly abundant.

* [I have in press a special paper on this species, illustrated with colored figures of both male and female. It will appear in the 'Bulletin' of the American Museum of Natural History, Vol. I, No. 7, article XVI. A brief reference to Mr. Brown's specimens may be found in the last number of, The Auk' (Vol. III, p. 275).—J. A. A.]

The birds remain in flocks in the region of the Catalina Mountains, where I live, till as late as the middle of April, when they gradually break up into pairs to assume their family duties.

The only nest I have found was at an altitude of about 3500 feet. This was on the 20th of May, 1885. There was little attempt at a nest, but simply a slight depression in the sand, lined with a few coarse grasses under a small cat-claw bush. There were eleven nearly fresh eggs that so closely resemble those described by Dr. Coues (see Birds of the Northwest, p. 443) that further description is unnecessary. It may be well in this connection to call attention to the extreme thickness of the shells of the eggs.

I have taken birds of the year in the same locality that had not yet completed the moult from the nest plumage as late as the middle of October, so that probably several broods are raised.

The birds, whether in flocks or singly, are shy and difficult to approach, and it is no easy matter to overtake a flock when they are alarmed and begin to run as a method of escape, instead of flying. The call-note of the birds after being scattered reminds one in a way of the note of the Guinea Fowl, only that it is not so loud nor continuous.

[Mr. Scott's collection includes a series of 41 specimens, collected chiefly in March and November. The sexes are about equally represented, and show no sexual difference in plumage, the lightest and the darkest birds being respectively just as often males as females. The fall specimens have a little stronger tinge of buff below and are a little darker generally than those taken in the spring. Mr. Sennett's series of 80 specimens of *C. squamata castanogastris*, taken in Southern Texas (Lower Rio Grande), average much darker, and are further distinguished by the abdominal chestnut patch, which forms the chief diagnostic feature of this form. The darker Arizona specimens, however, can not in some instances, be distinguished from some of the Texas specimens. In other words, were the labels removed, it would be impossible to give their origin, or to refer them to one race rather than to the other. Yet the Texas series compared side by side as a whole with the Arizona series contrasts strongly with the latter, through the deeper tone of all the colors, regardless of the distinctive abdominal patch and stronger rufous suffusion below.—J. A. A.]

48. **Callipepla gambeli.** GAMBEL'S PARTRIDGE.—Gambel's Quail is so commonly distributed throughout the entire region here considered, below an altitude of 5000 feet, that a few words as to breeding time and certain seasonal movements will suffice. In the winter months it rarely ranges above 4000 feet in the Catalina region, but during the warmer portion of the year many pairs range as high as 5000 feet, though the point in altitude where it is most abundant at all times is fully 1500 feet lower. It is common, too, in the immediate vicinity of streams, a point where I have never met with *C. squamata*. By the middle of April, on the San Pedro slope of the Catalina mountains, most of the birds are paired, and breeding has fairly begun, though I have data of flocks seen as late as April 13. About Tucson the breeding season

begins from three weeks to a month earlier. I have taken birds late in October that still were moulting from the nest plumage.

49. **Cyrtonyx montezumæ.** MASSENA PARTRIDGE.—This partridge I found rather commonly in the evergreen oak region of the Pinal Mountains, near the head of Mineral Creek. Also in about the same abundance and in the same localities on the San Pedro slope of the Catalina Mountains, ranging up as high as 5700 feet, and as low as 4000 feet throughout the year. It is generally to be met with in small coveys of from six to a dozen birds, and seems to affect points where the coarser bunch grass is most luxuriant. I have not found it breeding, but have taken young about two-thirds grown and still in the nest plumage early in October, in the Catalina Mountains.

Mr. Brown tells me that it is a common species in the oak region of the Santa Rita Mountains, and is generally to be met with in the same region on the mountains southward to the Mexican border.

50. **Meleagris gallopavo mexicana.** MEXICAN TURKEY.—The only records of this species that I have are from the San Pedro River, and the oak and pine region of the Catalina Mountains. The bird seems, from what I can learn, to have already greatly decreased in numbers in most localities, and to have become exterminated in others where it was formerly abundant. In the pine woods of the Catalinas at the highest altitudes it was very common late in November, 1885, though snow covered the ground.

(*To be continued.*)

ADDITIONAL NOTES ON PEALE'S PETREL (*ÆSTRELATA GULARIS*).

BY WILLIAM BREWSTER.

In his description* of the new Alaskan Petrel, *Æstrelata fisheri*, Mr. Ridgway intimates that perhaps I was mistaken in referring an *Æstrelata* taken in Western New York† to *Æ. gularis*, adding that it "seems, judging from the description, to belong rather to *Æ. fisheri*." Through the courtesy of the National Museum the type of *Æ. gularis* has been permitted to make a second journey to Cambridge, this time in company with the type of *Æ. fisheri;* thus these three interesting birds are at length brought together.

* Proc. U. S. Nat. Mus., Vol. V, 1883, pp. 656-658.
† Bull. N. O. C., Vol. IV, April, 1881, pp. 91-97.

After carefully comparing them I am led to the following conclusions: (1) That *Æ. fisheri* Ridgw. is perfectly distinct from *Æ. gularis* Peale. (2) That the New York waif is equally distinct from *Æ. fisheri*. (3) That this New York bird may be also distinct from *Æ. gularis*.

In referring it to *Æ gularis*, I ascribed the difference in color of the two specimens to a difference of age, assuming that the case afforded a fair parallel to that made out by Dr. Coues for the closely related *Æ. mollis*, which, according to the author just named, has several well-defined progressive stages of plumage, from the nearly uniform sooty or fuliginous condition of the young bird, to the ashy-gray and white livery of the adult.

Mr. Ridgway, however, has lately said* that "no fact in ornithology can be more thoroughly established than that, with the possible exception of the Albatrosses, *the Petrels have no distinct progressive stages of plumage*, the young assuming with their first feathers the fully adult livery"; an opinion which seems to be shared by the best European authorities on Procellaridæ.

Granting this to be an established fact—I have no disposition to dispute it—my former theory that the New York bird and Peale's type of *gularis* represent different ages of the same species must be, of course, abandoned. It is still possible to fall back on a theory of dichromatism, and to assume that the *Æstrelatæ*, like certain of the Fulmars, have two phases, a dark or fuliginous, and a light or grayish one. The fact that my bird agrees so closely with Peale's in every structural respect, and that the difference between the two consists chiefly in the absence in my specimen of the sooty wash which overlies most of the plumage of the type, has made me hesitate to discard such an apparently reasonable hypothesis. Indeed, I do not wholly discard it, for I cannot help suspecting that it may turn out to be the real solution of the problem; but having no material by which to either prove or disprove it, I merely call attention to it in passing, and adopt what seems to be the only plain course, viz.: that of naming and describing the New York bird as follows:—

Æstrelata scalaris, nov. sp.—SCALED PETREL.

SP. CHAR. *Adult. Sex—?* (No. 5224, Coll. W. B., Mt. Morris, Livingston Co., New York, April, 1880). Beneath white, immaculate only on

* Proc. U. S. Nat. Mus., Vol. V, 1883, p. 658.

the chin, throat, jugulum, central portion of breast and under tail-coverts;* sides and lower portion of breast finely mottled or vermiculated with grayish-ash; axillars, sides of body, crissum, and anal region with numerous broken, confused, but generally transverse, bars of plumbeous gray; abdomen dark slaty plumbeous, the feathers just perceptibly tipped with gray, giving the darker color a slightly hoary appearance. Above, with the forehead, crown, occiput, back, scapulars, and rump dark bluish-ash, darkest (with a slaty cast) on the rump, occiput, and ends of the longer scapulars; feathers of the forehead rather broadly and conspicuously margined and tipped with white; those of the crown narrowly with grayish-white; those of the occiput essentially plain; feathers of the back, as well as the scapular coverts, broadly tipped with ashy white, giving the plumage of these parts a scaled appearance; tail faded brownish-ash, essentially plain above, even when widely spread, although the outer three pairs of feathers have concealed white spaces mottled with gray on their inner webs, the white being most extended and purest on the outer pair and diminishing so rapidly inward that on the fourth pair it is nearly wanting, and on the central four feathers practically entirely so, these feathers being perfectly plain and uniform on both webs nearly to their bases.

The wings are difficult of description. On their under surfaces the exposed (inner) webs of the primaries and secondaries are ashy-white to within about an inch of their tips, which are light faded brown on both webs. The middle and greater under-coverts are pure white with a silky sheen; the lesser under-coverts blackish slate, forming a narrow dark band, bordered outwardly (or anteriorly) next the body by white, but about midway between the body and the carpal joint spreading over the plumage which lines the edge of the wing beneath, and from this point forward to the ends of the under primary coverts, extending quite to the edge of the wing.

On the upper or outer surface the first primary is dark slaty brown, the tenth pale faded brown with a hoary tinge; the intermediate ones form a perfectly graduated, connecting series, each, beginning with the first, being slightly paler and grayer than the preceding one. The secondaries and tertials are all uniform and rather darker than the darkest primary, but still with obscure hoary on their outer webs. All the primaries and secondaries have pure white spaces on their inner vanes, and basally, for a varying but always short distance, all are white across both vanes. On the outer vane the white comes rather abruptly to an end just below the point reached by the tips of the overlapping primary coverts. On the inner vane it diverges from the shaft a little beyond this point and extends to within about an inch of the extremity of the feather, leaving a gradually widening dusky space next the shaft. On the first primary this white space ends apically in a long, acute point, formed and bounded on three sides by the dark color which extends backward along the inner margin of the inner vane for nearly two inches. On each succeeding feather this dark

* A few of the shorter under tail-coverts have plumbeous spots on bars.

inner margin is shortened until with the sixth it disappears, the white on this feather, and all the remaining ones, ending more or less abruptly and squarely.

The primary coverts are essentially similar to the primaries, but with less white on their inner vanes. The greater, middle, and lesser secondary coverts are concolor with the back (hence, much lighter and bluer than the secondaries), and, like the feathers of the back, each is tipped, as well as margined, with ashy-white, forming narrow but distinct light wing-bands. The anterior edge of the wing, for a space more than an inch in width, is abruptly darker than the adjoining secondary coverts, and rather darker, as well as decidedly more sooty, than the darkest primaries.

There is much dark mottling about the eye, but the lores and a rather broad superciliary strip are pure white. The bill is black; the tarsus dull flesh-color. The basal third of toes, with contained webs, pale straw color; the terminal portion black.

Measurements: Bill (chord of culmen), 1.03 in.; height at base, .46; width, .42; length of nostril tubes to middle of incision, .16; to extremity, .25; tarsus, 1.37; outer toe and claw, 1.65; middle, 1.70; inner, 1.43; wing, 9.88; tail, 3.95; the graduation of the rectrices, .90.

The Petrel just described differs from *Æ. fisheri* in having a stouter, more strongly hooked bill, much shorter nasal tubes, less white on the forehead, crown and wings, the inner two pairs of tail-feathers perfectly plain on both webs, and the outer three pairs with faint sparse mottling on the inner webs only.* From both *fisheri* and *gularis* it differs in having the feathers of the back, as well as the greater and middle wing-coverts, tipped and edged with white, giving the back a scaled appearance, and on the wings forming distinct bands. Neither *fisheri* nor *gularis* shows any trace of white on the back, and neither has anything approaching well defined wing-bands. The nostril tubes in *Æ. scalaris* are apparently shorter and more prominent than the *Æ. gularis*, their superior outline straighter, the ends more squarely cut off and less deeply incised. The tubes in the type of *fisheri* have been apparently mutilated, so that their original shape cannot be safely stated, but they were certainly nearly twice as long as in either *gularis* or *scalaris*.

Despite the wide dissimilarity in coloring, the bird under consideration is clearly nearer related to *Æ. gularis* than to any other known species. Structurally the two appear to be identical (save in respect to the slight, perhaps trifling, difference

* The type of *fisheri* has lost the central pair of tail feathers, but all the others have much white mottling on both webs, giving the upper surface of the tail a conspicuously variegated appearance.

in the nasal tubes just mentioned), and, as already hinted, they may prove to be merely the dark and light extremes of a species subject to dichromatism. If really distinct from each other, as both unmistakably are from *Æ. fisheri*, the three birds furnish a remarkable case, viz.: that of three closely related species, the habits and distribution of which are almost wholly unknown, and each of which is at present represented by only a single specimen. To the species just described it is not even possible to ascribe a provisional habitat, its occurrence in the interior of New York being obviously accidental.

RECENT LITERATURE.

The A. O. U. Code and Check-List of North American Birds.* Few scientific books of recent years have been awaited with as much interest as this 'Check-List' of birds and its accompanying 'Code.' To those interested in systematic ornithology, the work is, of course, of the highest importance, as giving an authoritative settlement—so far as authority can settle anything in science—of the much-vexed questions in bird nomenclature. But to the systematic workers in other departments of Zoölogy, and even to botanists, its interest is scarcely less great.

For we who work in other fields are very willing to recognize the fact that the great questions which underlie all systematic nomenclature must be first met and settled by the ornithologists. The abundance and attractiveness of birds and the ease with which they may be collected and studied have combined to render ornithology one of the best cultivated of all departments of science. In spite of a good deal of amateur work, which, in one way or another, gets published, it is, I think, not too much to say that in all the various matters which make up the ground-work of systematic science—in the discrimination of species and varieties, in the study of the relations of these groups to each other, and to their environment—American ornithology stands at the front of systematic science.

We may, therefore, in the various stages through which our ornithology has passed, or is passing, read the future history of our own branches of science In many regards, the ornithologists are fighting our battles for us, and we may take advantage of the results won by their efforts. Thus the discussions of climatic influences on the characters of species, first serious-

* The Code of Nomenclature | and | Check-List | of | North American Birds | Adopted by the American Ornithologists' Union | being the Report of the Committee of the | Union on Classification and | Nomenclature | — | Zoölogical Nomenclature is a means, not an end, of Zoölogical Science | — | New York | American Ornithologists' Union | 1886. 8vo, pp. viii + 392.

ly taken up by Mr. J. A. Allen in 1871, and which has culminated in the trinomial system of nomenclature, has relieved workers in other fields from the need of urging the same considerations. So soon as our facts are sufficient for us to use the trinomial system, we shall find it ready for our use, perfected in all its details.

Again, the absolute importance of the law of priority has impressed itself on the ornithologists, in spite of themselves, for in past times the ornithologists have been among those who have most sinned against this same law. The efforts of Cassin, Coues, Stejneger, and others to ascertain the facts in regard to old names have shown that no middle ground exists between law and chaos in matters of nomenclature.

It is true, as the authors of the 'Code' have insisted, that "nomenclature is a means and not an end in science." But the experience of ornithologists have shown us that in systematic zoölogy and in zoögeography, this means is one absolutely essential to any end of importance. A system of nomenclature based on common fairness and common sense, and stable, because above the reach of individual whim or choice, is as necessary to success in this kind of work as a sharp scalpel is to good work in anatomy.

So long as no rules superior to the caprice of the individual or the tradition of some museum are recognized, so long is systematic work a mere burlesque, and our schemes of classification anything but a mirror of nature.

But besides the positive advances made by the ornithologists, from which others may profit when the time comes, there is something for us to learn from the results of their less fortunate experiments.

An illustration of this may be taken from the last Check-list of Dr. Coues. This work is in many respects most valuable. In it, however, so much learning and labor has been expended in the mending and remodelling of scientific names, as fairly to bring purism in that regard to *reductio ad absurdam*.

Hence the Committee on the new code, with Dr. Coues at its head, now declares that "a name is only a name, and has no necessary meaning," and therefore no necessarily correct orthography. After this experience, the work of strengthening the lame and halting words is hardly likely to be continued in other fields of science.

Another illustration may be drawn from the excessive multiplication of genera, a stage through which ornithology has naturally passed, and which other sciences, profiting from this experience, may possibly be able to avoid.

The work may be considered from three points of view. First, as a 'Check-List,' representing the present aggregate of our knowledge of North American birds. In this regard, the work seems to the present writer to be altogether admirable, and to leave no ground whatever for adverse criticism.

The 'Code' may be considered first in its adaption to the needs of ornithology. In this respect there is little to criticise. The fact that the

ornithologists have been able to agree upon it, and that they have applied it in detail to the production of a check-list, would show that for them the rules are good and sufficient. There are, in the 'Code,' a few traces of compromise; cases in which the sharpness of some positive ruling is somewhat blunted by exceptions. Some of these doubtless arise from difference of opinion among ornithologists, and others probably from peculiarities in the literature of ornithology. But whether these modifications be unavoidable or not, it must be remembered that no compromise will be binding on future authors, and exceptions, not inherent in the nature of the case, will be more and more ignored.

A serious difficulty with all preceding codes of nomenclature, has been a lack of explicitness in dealing with details. It has been hoped by zoölogists generally, that in this 'Code' all the important difficulties would be fairly met and disposed of in ways which could be followed in other sciences. In other words, we have hoped that this 'Code' would be one for zoölogists and botanists generally and not solely for ornithologists. That such a hope was in the minds of the committee also is evident from the care with which they have worked over and considered all previous codes, as well as from their own explicit statement (page 11): "These rules were considered in their bearing upon Zoölogy at large, as well as upon Ornithology alone; it being obvious that sound principles of nomenclature should be susceptible of general application."

From this broad standpoint, then, should the 'Code' be judged, and any rules or provisions based on compromise of opinions, as well as any arising from special peculiarities of ornithological literature, must be regarded as blemishes on the 'Code.'

Speaking only for himself and for his special line of work, the present writer wishes to express his great satisfaction with the 'Code.' In all its essential features, the 'Code' must commend itself at once to those who have made questions of nomenclature the subject of serious thought, and its rules for the most part need only formulation to secure adoption.

Where so much has been done and so admirably done, any word of criticism is thankless. A few points, however, occur to the writer, viewing this code of rules from the standpoint of his own experience.

The first of these is in regard to the Canon XVII, in so far as this applies to different names given in the same work to the same group.

This Canon reads as follows:

"Canon XVII. Preference between competitive specific names published simultaneously in the same work, or in two works of the same actual or ostensible date (no exact date being ascertainable), is to be decided as follows:—

"1. Of names the equal pertinency of which may be in question, preference shall be given to that which is open to least doubt.

"2. Of names of undoubtedly equal pertinency, (*a*) that founded upon the male is to be preferred to that founded upon the female, (*b*) that founded upon the adult to that on the young, and (*c*) that founded on the nuptial condition to that of the pre- or post-nuptial conditions.

"3. Of names of undoubtedly equal pertinency, and founded upon the same condition of sex, age, or season, that is to be preferred which stands first in the book."

It is certain that clauses 1 and 2 are based on special peculiarities of ornithology rather than on the general needs of zoölogy.

The question of equal pertinency of descriptions is very often a subjective one, and this rule gives room to individual judgment or caprice, which it is the business of the 'Code' to eliminate. As to clause 2, we may notice that in most groups of animals, as in the fishes for example, we cannot discriminate in any such way between males, females, and young, and between the various nuptial and non-nuptial conditions. The clause is evidently for ornithologists alone, and by other naturalists it must be disregarded. Of synonymous names which admit of positive identification, and which are printed in the same book, we shall doubtless continue to use the name which stands first upon the page, without regard to other considerations. I believe that the law of primogeniture is made to apply in the case of twins. The chief aim of the law of priority, like that of the law of primogeniture, is not justice but fixity. The present Canon XVII certainly will not secure fixity. The same remarks apply also to Canon XVIII, in regard to synchronous generic names.

In the cases of Canons XXI and XXIII, some important matters are left a little obscure. It is not stated to what degree, if any, we may be allowed to select the type of a comprehensive genus by (metaphorically) questioning its author as to which species he would have regarded as typical. Nor is it clear whether the results of the application of Canon XXI (the earliest restriction of a genus held to be valid) could be set aside either by the application of the process of elimination (Canon XXIII), or on account of the supposed views of the author of the genus. My own idea is that Canon XXI should be regarded as of superior validity, in case of difference of result being reached by these three processes.

The 'Code' agrees with all others in the rejection of *nomina nuda*, but it differs from some others in regarding a 'typonym' as something more than a bare name, and as therefore worthy of recognition.

In this regard the 'Code' is, justly or not, most likely to receive criticism from workers in other fields. Most other departments of zoölogy have but little to do with 'new genera' defined solely by the specification of a typical species.

These 'typonyms' have been generally discarded as the useless product of lazy or 'literary' naturalists, on the general ground formulated by Professor Cope, that "science is science and not literature," and that its names are meaningless, except as "handles to facts." It is, however, apparently the general feeling of ornithologists that names of this sort are too firmly fixed in their science to be now set aside. The Committee on the 'Code' goes so far as to say (p. 52) that "the mere mention of a type has been found to be often a better index to an author's meaning than is frequently a diagnosis or even a long description."

This may be true; but it is equivalent to saying that if a certain author

will tell us what he is talking about, we can form a better idea of his meaning than we shall have if we listen to his statements. Possibly the line must be drawn somewhere between the 'typonym' and the *nomen nudum*, but it is a pity that science should be obliged to notice either.

Canons XLIV and XLV, requiring absolute identification to secure priority, will offer some difficulties in practice, and it is in this regard that most fluctuations in nomenclature in the future are likely to occur. Absolute identification is often difficult among birds, and in more obscure groups it becomes less and less easy of attainment.

With these slight exceptions, the rules of the 'Code' seem to the present writer above cavil, and they fill the needs of other naturalists quite as well as they do those of ornithologists. With the possible exceptions of Canons XVII and XVIII, which do not seem to him wise, and which in fact he cannot use at all, the entire 'Code' will certainly be adopted by workers in ichthyology. I hope and believe that other branches of science will find these rules equally satisfactory, and that this may soon become in all important respects the Code of nomenclature for zoölogy and botany as well as for American ornithology.—DAVID S. JORDAN.

[The preceding review being confined mainly to a critical notice of the 'Code,' the following descriptive remarks are added respecting the 'Check-List.'

The A. O. U. 'Check-List,' compared with previous check-lists of North American birds, presents several distinctive peculiarities, the first of which is the order of arrangement adopted, the present list beginning with the 'lowest' or 'most specialized' forms and ending with the 'highest' or 'most generalized.' This, however, is in accordance with a sound and well-approved principle of classification, which has been for a considerable period carried into effect in other departments of zoölogy, and needs no defense or further explanation.

The second distinctive feature is the introduction of the names of all the higher groups, making the list a classified one, giving due prominence to the various 'rounds of the ladder' in systematic ornithology, from subspecies to 'orders.' Aside from the inverted order of arrangement, there are few departures from the systems of late in vogue in the standard works on North American ornithology.

A third distinctive feature is the introduction of references to the works where the genera, species, and subspecies were first named, and to the works where the names of the species and subspecies as here adopted were first used.

A fourth innovation is the introduction of a brief statement of the geographical range, or 'habitat,' of the species and subspecies, with special reference to their distribution in North America.

The geographical scope of the list is North America north of Mexico, and Greenland, and the peninsula of Lower California, with its dependent islands. This gives a 'hard and fast' geographical line, thus rendering it possible to decide the propriety of including any given species in the list,

on the basis of its actual capture within the prescribed limits. A natural faunal boundary would have been preferable could such have been defined, but with our present imperfect knowledge of the ornithology of the region south of the United States, the adoption of such a line is for the present impracticable—in fact, simply impossible.

Compared with former lists, in respect to the nomenclature adopted, the reduction in the number of genera, and the recognition of subgenera, are features of note. Other changes result from the strict enforcement of the law of priority, in respect not only to genera and species, but also to subspecies. As an outcome of this, many radical changes necessarily resulted. The English names, in some cases, are also changed, through an effort to adopt the most suitable, all things considered; and in the interest of brevity and simplicity only one name is in any case given for a species or subspecies, alternative names being omitted. The concordance of previous check-lists, however, gives a ready clue to either the scientific or vernacular names of any form as designated in each of the four preceding lists.

In the A. O. U. 'Check-List' 768 species are recognized, *plus* 183 subspecies, against 764 species and 160 subspecies in Mr. Ridgway's list of 1880, or a total of 951 names in the former against 924 in the latter, and 888 in Dr. Coues's list of 1882. This gives an apparent increase over Mr. Ridgway's list of 4 species and 27 subspecies (=31); but the actual increase is 29 species and 45 subspecies (=74).* In reality, however, some 50 names were eliminated and nearly 80 added. The changes introduced in the names themselves, including the many generic changes, probably affect about one-third of the specific and subspecific names. Twenty-six species and subspecies, not satisfactorily established as North American birds, though previously included in one or more of the earlier check-lists, are removed to a supplementary 'Hypothetical List,' being thus held in abeyance for further information respecting them. A list of the fossil species of North American birds, and a full index, closes the work, of which the 'Code' occupies pp. 1-69, the 'Check-List' proper, pp. 71-347, the 'Hypothetical List,' pp. 349-357, the list of 'Fossil Birds of North America,' pp. 359-367, and the Index, pp. 369-392.—J. A. A.]

Madarász's 'Zeitschrift für Ornithologie.'—The latest numbers of the 'Zeitschrift für die gesammte Ornithologie,' edited at Budapest by Dr. Julius von Madarász, have recently come to hand. Part IV of 1885 contains the first of a series of memoirs by O. Finsch and A. B. Meyer on birds from New Guinea, especially from the Alpine region on the southeastern slope of the Owen Stanley Range. It treats of the Birds of Paradise (19 species), of which not less than 6 new ones are described, among them types of two new genera, *Astrarchia* and *Paradisornis*, besides the

*The increase over Dr. Coues's list is much greater, in consequence mainly of the addition of the peninsula of Lower California and its dependent islands to the area covered by the new list.

hitherto unknown females of *Parotia lawesii* and *Lophorina minor*, and the likewise unknown male of *Amblyornis subalaris*. Two other species, or subspecies, from other parts of that region are also separated and named. Eight beautifully colored plates illustrate as many species, of gorgeous colors and strange forms.

The first part for 1885 has even a more elegant typographical appearance than the foregoing two volumes. Finch and Meyer's memoir is continued, treating of 69 species, 12 being new, among which are four new *Psittaci*, accompanied by fine illustrations.

We take pleasure in calling the attention of American ornithologists to this Journal, a number of which appears in March, June, September, and December, consequently a month ahead of 'The Auk' and 'The Ibis.' Its character is international, articles in any of the scientific languges being accepted for publication, and eqŭal interest is taken in all the zoögeographical regions of the earth. The contents are varied, and many exceedingly valuable and interesting memoirs have already appeared in it, making it indispensible to the working ornithologist. The price ($5.00) is exceedingly low considering the great number of colored plates; thus volume II contained not less than 22 plates. We are told that the 'Zeitschrift' has only two North American subscribers. It is about time that the ornithologists of our country give up their exclusiveness and study the birds of this continent as a part of the birds of the whole earth, lest our views become narrow and our opinions one-sided. The North American avifauna is only a small part of that of the world, and cannot be properly understood unless viewed from the standpoint of a general knowledge of the whole class. An additional number of American subscribers to Madarász's 'Zeitschrift' would indicate that we have determined to emerge from our seclusion and take a place among the students of the whole class, and not merely of the birds inhabiting a single zoölogical province. The address of Dr. J. v. Madarász is the National Museum, Budapest, Hungary.—L. S.

Goss's Revised Catalogue of the Birds of Kansas.*—Our readers will remember the Catalogue of the birds of Kansas published by Col. N. S. Goss, in 1883. Since that time, several new facts have been brought to light, and a number of species have been added to the list. The present "Catalogue" contains 335 species and races, against 320 in the old list. All local lists are of much value when carefully prepared, and aid us greatly in determining the geographical range and migration of species. Much time and care have evidently been given to the preparation of this work, and Col. Goss is to be congratulated on the successful completion of so interesting a contribution to our ornithological knowledge of Kansas. The arrangement and nomenclature is that of the A. O. U. Check List. —C. B. C.

*A revised Catalogue of the Birds of Kansas, with descriptive notes of the Nests and Eggs of the Birds known to breed in the State. Topeka, 1886. 8vo., pp. vi + 76.

Capen's 'Oölogy of New England.'*—Under this title Mr. Capen has published a handsome volume, illustrating in color the eggs of our New England birds. It is a work which will, no doubt, be welcomed by many who are interested in egg-collecting, and they will find these colored illustrations of great assistance in the identification of specimens. Short descriptions of the eggs and nests are given, together with notes on the breeding habits of the species.

We wish that the author had given his authority for including among the birds *known* to breed in New England, such species as *Empidonax acadicus*, *Polioptila cærulea*, and *Thryothorus ludovicianus*, while omiting others, such as *Plectrophenax nivalis* and *Lanius borealis*.

The typography and general appearance of the book is excellent, the plates especially being far better than colored lithographs usually are. —C. B. C.

Nests and Eggs of the Birds of Ohio.—We have a double number of this great work, which maintains the high character of which we have often spoken already. It is Parts 21 and 22, pp. 235–286, pll. lxi-lxvi. Of the six plates, three are devoted to various eggs, chiefly of water birds, and birds of prey without nests. Of those with nests, pl. lxi represents *Lanivireo flavifrons* and *Helminthophaga chrysoptera;* pl. lxv, *Seiurus auricapillus;* pl. lxvi, *Parus atricapillus.*—E. C.

Mrs. Miller's 'Bird-Ways.'†—Few more delightful bird-books have appeared than Mrs. Miller's 'Bird-Ways,' it being of equal interest to the bird-lover and the specialist. In style it is simply admirable, from the purity and simplicity of its diction. The book is made up largely of articles previously published in the 'Atlantic' and other magazines, but contains several papers not before printed. Mrs. Miller is a genuine bird-lover, intelligent and accurate in her observations, whether of birds in the aviary or in the field. Many of her sketches relate to some of our native birds kept as household pets, and include the Robin, the Wood Thrush, the Catbird, the Red-winged Blackbird, and the Baltimore Oriole. There is also a chapter on the European Song Thrush, while no less than five are devoted to the European House Sparrow, which latter have the following headings: 'A Ruffian in Feathers,' 'A Tragedy in the Maple-tree,' 'Trouble in the Honeysuckles,' 'The Bird of the Street,' and 'These are your Brothers.' In these are well depicted the character and domestic life of this discordant and now unwelcome denizen of our streets and parks. The chapter on the Robin is suggestively headed 'The Bird of the Morning'; the two chapters on the Wood Thrush are entitled respectively 'The Bird of Solitude,' and 'A Gentle Spirit,' while the Red-winged Blackbird is 'The Bird of

*Oölogy of New England; a description of the Eggs, Nests and Breeding Habits of the Birds known to breed in New England, with colored illustrations of their Eggs. By Edwin A. Capen. Boston, 1886, 4to., pp. 116, pll. xxv.

†Bird-Ways. By Olive Thorne Miller. Boston and New York: Houghton, Mifflin & Company, 1885. 16mo., pp. viii, 227.

Society.' These felicitous titles indicate the character of the sketches, which are based on personal experience and observations.

The present little volume forms a fitting addition to its publishers' previous trio of bird-books, namely, Torrey's 'Birds in the Bush,' and Burroughs's 'Wake Robin' and 'Birds and Poets,' either of which it easily rivals in interest and literary merit.—J. A. A.

The 'Water Birds of North America'—Explanations.—In the April number of 'The Auk,' III, p. 266, Mr. Ridgway has undertaken to "rectify" some of my corrections of the above work made in the January number (III. p. 124), and asks for certain explanations. It is unfortunate that remarks intended by me to be complimentary, and purely for the advancement of the science, should be so misconstrued as to lead to discourteous and almost personal criticism; but while disavowing the least intention to be unjust to the authors and compilers, I must insist on the right to give facts, even if contrary to their statements, and to let the public form their own opinions as to the points in dispute. Mr. Ridgway calls my article "a long list of so-called corrections." There are really less than thirty items given by me from the perusal of two quarto volumes of more than 700 pages, showing *prima facie* but little to correct. Many (14) of the items are typographical or proof-reader's errors, which need correction. Eight items are "additional observations," which I mention as such rather than corrections, although mostly called for by the omission of Dr. Brewer to quote them while compiling a work intended to comprise the whole history of the birds as then known. The corrections I make relating to the writings of others are all typographical, except those given below, and Dr. Brewer's omissions.

I now proceed to answer Mr. Ridgway's questions and "rectifications" of his own portion of the work, hoping to satisfy him and all others as to the facts.

Mareca americana. Widgeon.—The authority for the fact that the Widgeon does not breed in the United States is the history given in Vol. I, p. 522–524, where it is quoted as breeding abundantly in British America, "but only rarely in the extreme northern parts of the United States," without giving any instance of the last-named kind. Mr. Ridgway's specimens, though published eight years previously, are not referred to—a strange omission.

I must, however, confess here to a blunder of my own, which is, that I should have given *Æthyia americana*, the Red Head, as mentioned by Dr. Heermann, among the Ducks breeding in Sacramento Valley, California, not the Widgeon. No one else seems to have found it breeding south of Lat. 42°.

Pelecanus californicus *Ridgw.*—This being a little-known form I ventured to give some facts as to specimens I collected at San Diego, without any intention to "discredit" its distinctness as a *species*, but I will now assert that its claims to that distinction seem very slight. Its larger size is in accordance with the local variations of many other birds, and the

red condition of the pouch might easily be explained by individual or accidental causes. As Brown Pelicans are found on both sides of the Panama Isthmus, and must fly across it, a comparison of Central American specimens should furnish important points on this subject. As now stated, the West Coast bird looks like a mere subspecies or local race.

Cymochorea melania and **C. homochroa.** — Notwithstanding Mr. Ridgway's positiveness, I have to reassert the *facts* regarding Emerson's specimens, that with Ridgway's descriptions before me, and the bird in my hand, I found it to differ from both as mentioned, being decidedly intermediate.

Puffinus stricklandi *Ridg.*—Mr. Ridgway himself answers his question why I considered my specimen *P. stricklandi* instead of *P. griseus*, by acknowledging his own error in regard to the difference in size of the two species, my bird being larger than the largest size given for the former. Not having the specimen at hand I cannot decide as to plumage, but at the time I collected it I compared it with Coues's monograph of *Puffinus*, and found it agree with *P.* "*fuliginosus*" (=*stricklandi*), *not* with *P.* (*Nectris*) *amaurosoma* (=*griseus*). So the question rests on the accuracy of the descriptions of Coues and Ridgway.

As to the unification of several so-called 'species,' we need only to look at the synonymy of most of the Longipennes and Tubinares to see that great combinations of nominal species have been made already, and a study of the species still recognized shows that many of them differ very slightly. Their distinctness is based on the fact that intermediate forms have not yet been found. This is an artificial rather than a natural basis of distinction, as shown by the difference in degree of distinctness found in groups of species breeding on continents and those breeding on islands; both land and water-birds. In continental groups we find many species embracing several subspecies or geographical races, especially where of very wide range, these races connected by graded links. Island-breeding birds, however, while presenting many local races, are so separated by water from each other that there is no intermediate ground for the production of connecting links, and the local races, therefore, are called 'species' though often less different than the extreme races of some continental birds. Therefore, I still assert that consistency requires the combination of many so-called species of water-birds if not into fewer 'species,' at least into groups nearly corresponding to some continental species. The descriptions of the four *Puffini* mentioned show close similarity in size and form. The difference in plumage, on which two have been separated as *Nectris*, if positively proved not to depend on age (which is left unsettled in the 'Water Birds'), may be dichromatic forms, like those of some Herons. There is not enough known yet regarding these birds to decide this question. But accepting Mr. Ridgway's decision that all the species he gives are distinct, we are forced to the conclusion that a 'species' depends rather on the nature of the earth's surface, separating the breeding places of two forms, than on the degree of difference between the forms themselves.—J. G. Cooper, M. D.

[It is a matter of surprise and regret to me that any portion of my remarks, above referred to, should be construed by Dr. Cooper as being either "discourteous" or "almost personal." They were certainly not so intended, and upon again carefully reading both Dr. Cooper's 'Corrections,' and my 'Rectifications' I am unable to find anything in the latter justifying such construction.

In taking cognizance of Dr. Cooper's article, I exercised merely the privilege of an author to defend his writings against adverse criticism, and in the present case it was my duty, as well as privilege, to do so, in order that the interested portion of the public might have the *other side* of the "points in dispute." The points under discussion are not so much matters of personal concern as they are questions of facts; and the circumstance that exactly one-half of the thirty items given by Dr. Cooper under the indiscriminating title of 'Corrections' relate merely to typographical errors, many of them so obvious that no correction is necessary, while of the remaining fifteen more than half constitute, as he himself states, items of "additional information," will, I think, justify my use of the term "so-called" in connection with them — a characterization the more necessary since Dr. Cooper expressly says, in his introductory remarks, that "the following corrections .... relate chiefly to quotations from my [his] own writings," which, in point of fact, as shown above, they do not do.

Dr. Cooper himself, in the above, 'rectifies' his 'so-called correction' regarding the breeding of *Mareca americana* by explaining that he meant *Aythya americana*. In regard to this species, I would also refer him to 'Ornithology of the Fortieth Parallel' (p. 625), where it is stated that "in June, either this species [*A. vallisneria*] or the Red-head was very abundant in the tule sloughs in the vicinity of Sacramento, where they were undoubtedly breeding." I have since had reason to consider the species as being beyond question *A. americana*, and not *A. vallisneria*.

Respecting the overburdening of the synonymy of "most of the Longipennes and Tubinares," for which Dr. Cooper suggest a remedy, a considerable "lumping together" of allied forms, it must be stated that the unfortunate condition which others, no less than Dr. Cooper, deplore is chargeable much less to those who draw fine distinctions (or, more properly, who are scientifically accurate), than to those who ignore distinctions which really exist, who have made erronous identifications, and who have given new names to species already named without being aware of the fact. In short, to any one who will take the trouble to look up the history of the synonyms of almost any species thus burdened, it will become very evident that they owe their existence to very many circumstances over which the so-called 'hair-splitter' has no control, and for which he is in no way responsible.

The suggestion that certain dark colored *Puffini* "may be dichromatic forms" of other white-bellied species, is not new, having been made at least a year ago. Speaking of dichromatism among the Herons, Dr. Leonhard Stejneger, in 'Standard Natural History,' Vol. IV, p. 7 (1885), says: "The example from the herons can be nearly duplicated by the status

of some forms of fulmars, from the northern Atlantic and Pacific oceans. . . . . We have other examples of dichromatism in the same group, as the dark and white forms of *Ossifraga gigantea;* and Mr. Ridgway's suggestion that it will be found more [or less] extensively all through the superfamily of Tubinares or Procellaroideæ, is well worth consideration.'

As to other questions involved, their further discussion by me is unnecessary, and the valuable space which would thus be sacrificed can easily be filled much more acceptably to the readers of 'The Auk.'—ROBERT RIDGWAY.]

Dr. Shufeldt on the Osteology of the Trochilidæ, Caprimulgidæ, and Cypselidæ.* — In the present paper, Dr. Shufeldt treats of three of the most interesting families of birds, anatomically speaking. He gives very detailed descriptions of the bones of *Trochilus alexandri*, several *Chordedilæ*, and *Phalænoptilus nuttalli*, as well as *Panyptila saxatilis*, accompanied by finely executed plates, for which working anatomists who have no access to the forms mentioned, will be very thankful. It can not be our intention, in the present connection, to examine into the general correctness of the descriptions, which may be taken for granted until disproved, but we are obliged to say that Mr. Frederic A. Lucas, the osteologist of the National Museum, Washington (who is also the original source of the information contained in a note in 'Science,' 1886, p. 572), has called our attention to the fact that Dr. Shufeldt in describing and figuring the forelimbs of *Trochilus*, has transposed the humeri of the two sides, and described and figured the right humerus in place of the left one, which seems quite obvious from an inspection of pl. lxi, fig. 3*h* as compared with the corresponding part of fig. 4. The great difference which Dr. Shufeldt found in the form of this bone in Micropodidæ (= Cypselidæ) and Trochilidæ is thus easily accounted for and reduced to very little indeed.

But more interesting to ornithologists in general are his 'Conclusions' which sum up the results of his comparisons of the three families. He first confirms the correctness of the view held by a great many ornithologists and anatomists (*ex. gr.*, W. K. Parker, Newton, Nitzsch, Garrod, Forbes, etc.), that the Caprimulgi are not very closely related to the Cypseli or Trochili, and should be removed from the 'order' Macrochires. It is very interesting to remark that Nitzsch, in establishing this term, only included therein *Cypselus* and *Trochilus*, while *Caprimulgus* and its allies were kept in a group by themselves. It is not probable that the separation of the Goatsuckers from the other two groups will be seriously challenged. Not so, however, Dr. Shufeldt's conclusion, that the relationship of Cypseli and Trochili is equally remote, and that "with the exception of a few minor points in their organization, the Swifts are essentially

* Contribution to the Comparative Osteology of the Trochilidæ, Caprimulgidæ, and Cypselidæ. By R. W. Shufeldt, M.D. < Pr. Zool. Soc. London, 1885, pp. 886-915 + pll. lviii-lxi.

modified Swallows, and, as the family Cypselidæ, they belong in the order Passeres, next to that group." Here we must enter a most decided protest, quoting, as we do, Prof. W. K. Parker, perhaps the most competent anatomist living. He says of the Swallow*: "In this remarkable group of tender-billed Passerines, there is not, as far as I am aware, a single aberrant character of importance. The skull, the skeleton generally, the digestive and the vocal organs, — all these might belong to species of the genus *Sylvia*. And yet, in minor adaptive modifications (I say *minor* in reference to what is of importance in morphology), these birds are full of modifications, and to the unscientific eye they appear to belong to the kind of the Swifts, and not to the kind of the ordinary Warblers. The Swifts, however, lie on the extreme margin of the Coracomorphæ, and form another group, which leads to the Goatsuckers; but the Swallows have retained (or gained) that perfect *syrinx* which is the sign and the seal of their right to the title 'Oscines.'" And of the Swifts he says (op. cit., p. 295): "Although the border of the Swifts falls to them close on that 'topland' of the Passerines where the Swallows congregate, yet are these conterminous groups only 'second cousins,' and more alike in their habits and mode of dress than in their real nature. . . . Now a Swift, as to his skull and face, is merely an exaggerated Swallow, an *ultra-hirundine* bird, a caricature, as it were, of the true Passerine gaping birds. In the skeleton he comes close to the Humming-bird; in the huge disproportion in length of the *arm* to the *hand* even the Swallow begins to be very *Cypseline;* but the Swift and the Humming-bird are here as one. So also, are they in the sternum and shoulder-girdle; the Swift also has lost the 'cæca coli,' and has not developed any intrinsic muscles to the syrinx."

Is it possible that Dr. Shufeldt has overlooked the *many* points in which Swallows and Swifts disagree outside of the skeleton? It may be well to enumerate some of the most salient features, and for that reason we introduce the following brief statement from the 'Standard Natural History,' IV (1885), p. 437: "Externally they may be easily distinguished; the Swifts by having ten primaries, not more than seven secondaries, and only ten tail-feathers; while the Swallows have but nine primaries, at least nine secondaries, and twelve tail-feathers. The Swifts have also the dorsal track bifurcate between the shoulders, while in the Swallows it is simple. Internally they differ in a great number of points, but we shall only mention that the Swifts have a sternum, while the Swallows have the manubrium bifurcate, and the posterior border deeply two-notched; the former have a myological formula A $\frac{\cdot}{\cdot}$, the latter A X Y $\frac{\cdot}{\cdot}$; the former are synpelmous, the latter are schizopelmous; the former have a peculiar arrangement of the tensor patagii brevis, the latter have the general arrangement of the Passeres; the former have a simple syrinx without intrinsic muscles, the latter have a very specialized syrinx; the former are without cæca, the Swallows possess them, etc., the total effect being that the Swifts are Picarians and the Swallows are Passeres."

* Trans. Zool. Soc. London, X, 1878, p. 293.

Dr. Shufeldt explains the similarities in the skeletons of Swifts and Hummers by saying that "such similarities are due to physiological adaptation of structure, referable in the present instance to the peculiar flight of these birds, and the consequent requirements of the muscles involved in it." But what differences are there in the Swifts' flight from that of the Swallows' that should have caused such a remarkable modification towards the Hummingbirds? And are not the Swallows' and the Swifts' flight more similar *inter se* than that of either one to the Hummers? How is it then that the wings of Swifts and Hummers are more alike, even in the shape of the humerus and its processes?

Finally we take the liberty to introduce a scheme of the Picarians which we prepared last year for the bird-volume of the 'Standard Natural History.' The order Picariæ is quite polymorphic, but, after all, we do not regard it as so extremely unnatural. Some few forms may have to be eliminated, but until it be shown that these have had an ancestry different from the common stock from which most of them have sprung we consider it as consisting of the following super-families:

Homalogonatous; desmopelmous; *Cuculoideæ*, *Coracioideæ* } dorsal tract furcate between the shoulders.

Anomalogonatous.

X enters into the myological formula.

synpelmous; *Colioideæ*; feet pamprodactylous; *Alcedinoideæ*; feet anisodactylous } dorsal tract simple between the shoulders.

schizopelmous; *Upupoideæ*; dorsal tract furcate between the shoulders.

antiopelmous; *Picoideæ*; zygodactylous . . .

heteropelmous; *Trogonoideæ*; heterodactylous } dorsal tract simple between the shoulders.

A alone constitutes the myological formula. *Micropodoideæ* { pamprodactylous or anisodactylous }

We remark that the Goatsuckers are referred to the super-family *Coracioideæ*, consequently far from the Cypseli and Trochili, which we include in the super-family Micropodoideæ.

In the mean time, we are always thankful for the contributions of Dr. Shufeldt, and we learn with great satisfaction that it is his intention to take up the Trogons next. But we must warn against conclusions solely drawn from osteological characters, and in the present order, especially against such ones as are based chiefly in the features of the bony palate. A natural system cannot be based upon one single set of characters; all will have to be carefully considered, whether they are external or internal, before we can hope to understand the true relationship of the different groups.—L. S.

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GENERAL NOTES.

Phœnicopterus ruber as a South Carolina Bird.—In the A. O. U. 'Check-List' the habitat of the Flamingo is given as "Atlantic coasts of subtropical and tropical America; Florida Keys." This statement, excluding the Audubonian record, does not complete the written history of its distribution so far as South Carolina is concerned. In the 'Monthly Report of the South Carolina Department of Agriculture' (Circular No. 5, new series, Aug. 1, 1885, pp. 6, 7) Dr. G. E. Manigault, Curator of the Museum of the College of Charleston, mentions the capture of a specimen near Georgetown, in September, 1876. The bird was forwarded to the museum, but not being well prepared had to be thrown away. It is not improbable that the species was formerly more than an accidental visitant in the State, as both Ramsay and Mills include it in their vernacular lists; the former, in his 'History,' in 1809, and the latter in the 'Statistics of South Carolina,' in 1826, about the time of the disappearance of the Paroquet from our local fauna.—LEVERETT M. LOOMIS, *Chester, S. C.*

More News of Ardetta neoxena.—I have received a letter from Mr. R. T. Stuart of Tampa, Florida, who claims to have killed the type of this species. He states that he remembers it perfectly, and that he shot it on or near the Caloosahatchee River, near Lake Okeechobee, Florida.—CHARLES B. CORY, *Boston, Mass.*

Another Speciman of Ardea wuerdmanni?—I have received from Mr. R. T. Stuart an *Ardea* which closely resembles the type of *A. wuerdmanni* in the Smithsonian Institution. So many theories have been advanced regarding this bird that it would be hardly advisable to hazard new guesses as to the cause of the peculiar coloration. The specimen was killed in Southwestern Florida, and a number of the Great White Heron (*Ardea occidentalis*) were killed in the same locality.—CHARLES B. CORY, *Boston, Mass.*

Early Arrival of a Rare Bird.—On the 18th of March, the present year, a Black Rail (*Porzana jamaicensis*) was captured on low bottom land near Neosho Falls, Kansas. This is much earlier than it has previously been noticed.—N. S. GOSS, *Topeka, Kans.*

Ægialitis meloda circumcincta on the Coast of South Carolina.—While collecting waders on the fine sea beach of Sullivan's Island, near Charleston, May 11, 1885, I shot a typical specimen of the Belted Piping Plover (*Æ. m. circumcincta*). It was a male in high nuptial plumage, with the black pectoral collar broad and continuous. There can be little doubt that this inland form will prove to be a regular if not uncommon fall and spring visitor to the Atlantic coast of the Southern States.—WILLIAM BREWSTER, *Cambridge, Mass.*

The Snowy Plover on the Salt Plains of the Indian Territory and Kansas.—On the 18th of June, 1886, I found *Ægialitis nivosa* breeding on the salt plains along the Cimarron River, in the Indian Territory, the northern limits of which extend across the line into southwestern Comanche County, Kansas. I shot two of the birds within the State limits, at the edge of the plains, and saw one more, a female, with two young birds nearly half grown, which I had not the heart to disturb. Just south of the line, in the Indian Territory, I saw several of the birds, and started one from a nest—a depression marked out in the sand, with no lining, and nothing near to shelter or hide it from view. The nest contained three eggs nearly ready to hatch. Their dimensions are 120 × 90, 120 × 89, 122 × 89; color, pale olive drab (approaching a light clay color with a greenish tint), rather evenly and thickly marked with irregularly-shaped, ragged-edged splashes and dots of dark or blackish brown. The measurements of the three birds shot, which on dissection proved to be females, are as follows:

Length.	*Extent.*	*Wing.*	*Tail.*	*Tarsus.*	*Bill.*
6.40	13.20	3.90	1.80	.95	.60
6.50	13.50	4.00	1.80	.95	.60
6.60	13.70	4.10	1.90	.95	.60

Iris dark brown; bill and claws black; legs and feet bluish ash. The birds are lighter in color, and the markings about the head not quite so distinct, as in the pair in my collection shot at San Diego, California, in November, 1881. I therefore send two of the skins for examination, as I have not any specimens in the breeding plumage from the Pacific coast.

When I started for the salt plains it was my intention to spend several days and carefully look up its bird life; but a business matter called me home, and as it was important that I should reach the stage line that evening, I only had time for a short and hurried ride over a very small portion of the grounds. From the number of these Plovers seen, however, I think it safe to enter them as quite a common summer resident.—N. S. Goss, *Topeka, Kansas.*

[The two birds sent by Col. Goss are very much lighter in color than California specimens taken in the breeding season, but agree exactly with a specimen in Mr. Sennett's collection taken at Corpus Christi, Texas, May 24, 1882. These three examples differ markedly from Pacific Coast specimens, they showing only the merest trace of the fulvous tinge on the head, while the black markings are much paler, and the upper plumage generally presents a bleached or washed-out appearance. Doubtless additional material will show that the birds of the Plains—from Texas northward to Kansas—are well entitled to subspecific separation.—J. A. Allen.]

Naturalization of the European Goldfinch in New York City and Vicinity.—I am informed by Mr. W. A. Conklin, of the Central Park Menagerie, New York City, that the European Goldfinch (*Carduelis elegans*)

first appeared in the Park in 1879, having probably crossed the Hudson River from Hoboken, N. J., where some birds had been set at liberty the previous year. The species is now common and apparently resident.

On April 20, 1886, I discovered, in precisely similar situations, two nests, one of which, containing five fresh eggs, has been forwarded to the Smithsonian Institution. It was placed in a pine tree, resting among the tufts of long needles near the end of a slender horizontal limb, some twelve feet from the ground.

The species seems to be gradually extending its range, as on May 23, 1886, I met with a pair occupying a clump of pines six or seven miles to the northward.—E. T. ADNEY, *New York City.*

Ammodramus lecontei near Charleston, South Carolina.—During the past two winters Mr. Wayne has been searching carefully for Leconte's Sparrow, and his efforts are at length crowned with success, for he now sends me a female, shot January 26, 1886, about seven miles inland from Charleston. This extends the range of the species practically to the coast of South Carolina, but it is doubtful if it ever occurs there in anything like the numbers which Mr. Loomis finds in Chester County.—WILLIAM BREWSTER, *Cambridge, Mass.*

The Cardinal Grosbeak and Tufted Titmouse breeding in Essex County, New Jersey.—Although not remarkable, it may be worthy of note that these two species are residents in greatly increased numbers in this vicinity, during my residence here of the last three years. They are quite common in suitable localities at all seasons. In 1884 a nest of a Cardinal was brought me, and this season I found two more, containing respectively two and three eggs each, on May 24 and May 28, which had been incubated some days.

Although I have not been fortunate enough to take the eggs of the Tufted Tit myself, they breed in considerable numbers at Springfield, two miles from here, while near Chatham a boy found two sets last year and two this year, in the early part of May.—H. B. BAILEY, *South Orange, N. J.*

Vireo solitarius alticola at Charleston, South Carolina.—Among other interesting birds collected for me by Mr. Wayne, during the past winter is a typical specimen (♂) of this new bird. It was shot February 20, 1886, within a few miles of Charleston, where it may prove to be a regular winter resident, although all the winter and early spring specimens which I have hitherto seen from that locality, as well as from Georgia and Florida, have been true *solitarius.*—WILLIAM BREWSTER, *Cambridge, Mass.*

Occurrence of the Prothonotary Warbler (*Protonotaria citrea*) in Massachusetts.—On the afternoon of May 9, 1886, I was rowing up the Assabet River in Concord, Massachusetts, when my companion, Mr. D. C.

French, called my attention to a small bird, which was hopping about in some driftwood at the edge of the water. Getting only a glimpse at it I mistook it for a Yellow Warbler and was about to take up the oars again when it came out in full view and I at once recognized an old friend which I certainly never expected to see in Massachusetts, viz.: the Prothonotary Warbler. It seemed perfectly at home, flitting from twig to twig, jetting its tail, and occasionally chirping sharply. Once it sang in an undertone. It was very tame, and as we sat watching it our boat drifted past within a few yards without alarming it. Finally I shot it. It proved to be an adult male in high plumage. Its skin was well covered with fat, its stomach filled with insects, chiefly beetles. The weather was fine at the time, but on the preceding day an easterly storm of some violence prevailed along the Atlantic coast, from Cape Hatteras to New England. To this storm I doubtless owe the pleasure of adding the Prothonotary Warbler to the fauna of our State, for my specimen is the first that has been reported from Massachusetts, although the bird has occurred once previously in Maine, and once in Rhode Island.—WILLIAM BREWSTER, *Cambridge, Mass.*

Helminthophila leucobronchialis in New Jersey.—A specimen of this hybrid was killed about ten miles from this place by Mr. Auguste Blanchet in the latter part of May, 1859. The entire dorsal plumage is tinged with greenish-yellow; the throat and cheeks are pure white, very lightly tinged with yellowish; upper breast grayish; breast yellow, extending toward the crissum; a small black line through the right eye, a large grayish patch behind the left; wing-bars yellow. The whole plumage resembles somewhat that of the female *H. chrysoptera*, but the grayish on the breast is not so deep.—E. CARLETON THURBER, *Morristown, N. J.*

An Interesting Specimen of Helminthopila.—Mr. E. Carleton Thurber, of Morristown, New Jersey, has kindly sent me for examination a *Helminthophila*, which differs considerably from anything that has been hitherto described, and which is apparently a hybrid between the hybrid *H. lawrencei* and the typical *H. pinus*. It is most like the adult male *H. pinus*, the wing- and tail-markings and general coloring, both above and beneath, being essentially the same. But across the jugulum there is a broad band of heavy black spots, and the black eye-stripe, short and well defined in *pinus*, is in this bird narrowed to a mere line anteriorly, and posteriorly extends to the auriculars, over a portion of which it spreads, forming a dusky or blackish patch more or less broken or overlaid by a plentiful mixture of yellow. The black-spotted space on the jugulum is widest in the middle, narrowing gradually as it approaches the sides. Its greatest width is rather more than one-quarter of an inch. The spots are subterminal, all the feathers being tipped, and many of them edged as well, with the rich yellow of the underparts generally. This, of course, tends to conceal the black, but it cannot be entirely concealed by any arrangement of the feathers, and when they are disarranged ever so slightly it is a

conspicuous feature. Its effect is not unlike that seen in young autumnal males of *Dendroica virens*, which have the black of the throat and jugulum more or less similarly overlaid with yellow.

In briefer terms, this interesting bird may be said to be about intermediate in color and markings between typical *pinus*, with its short, narrow eye-stripe and uniformly yellow underparts, and the so-called *H. lawrencei*, which has a broad, black patch extending from the bill through and behind the eye, and the chin, throat, and forepart of the breast solidly black. It forms an important link in the chain of evidence supporting my theory* that *H. pinus* and *H. chrysoptera* frequently interbreed, and that their offspring perpetuate a variously-characterized hybrid stock by breeding back into one or the other parent strains. That this is the only possible way of accounting for the now almost complete series of intermediate specimens connecting the obviously distinct species *H. pinus* and *H. chrysoptera* is to my mind certain, despite the able argument to the contrary lately published† by Mr. Ridgway.

Mr. Thurber tells me that the specimen just described, was shot about May 15, 1884, two miles from Morristown, and exactly four and one-half miles from the place where the type of *lawrencei* was obtained. The sex was not determined, but it is undoubtedly a male. The collector, Mr. Frank Blanchet, has also taken another hybrid of the '*H. leucobronchialis*' type in the same locality [as above recorded by Mr. Thurber].—WILLIAM BREWSTER, *Cambridge, Mass.*

Kirtland's Warbler on St. Helena Island, South Carolina.—Mr. W. W. Worthington, of Shelter Island, New York, has shown me a skin of this Warbler which he has secured for his private collection. The specimen is a male in full plumage and was shot by a native lad on the 27th of April. I had suspected the existence of the species here before, but was unable to secure any specimen. On May 3, while returning to camp without my gun, I observed three specimens near the middle of the Island. They were quite familiar, allowing me to approach cautiously within less than a rod, and seemed to be at home—not tired, and yet anxious to be off, as passing migrants usually are. The notes are of two distinct characters. The first, a song, was uttered with the head held forward and the body quite erect. It bore a striking resemblance to the song of the Yellow-throated Warbler. The second was a loud chipping, uttered while moving about among the bushes, and was kept up for a space of one or two minutes at a time. Resting a few seconds the bird would begin again, creeping about the branches and 'swapping ends' with a quick, jerking movement all the time. Arriving near the top of the bush or the end of the branch he would settle himself and sing two or three times before fluttering to the next bush. All these specimens were in low bushes and seemed to prefer them to trees. For though there were

* Bull. Nutt. Orn. Club, Vol. VI, 1881, pp. 218-225.

† Auk, Vol. II, 1885, pp. 359-363.

plenty of them about, and some very tall ones, I saw none of them ascend to a greater height than ten feet. Neither did I see any of them alight on the ground. The time was shortly after sunrise. A subsequent visit to the same locality at mid-day was unsuccessful.—WALTER HOXIE, *Frogmore P. O., St. Helena Id., S. C.*

Connecticut Warbler—A Correction.—In the 'Bulletin of the Nuttall Ornithological Club' for July, 1882 (Vol. VII, p. 190), I recorded the capture of a Connecticut Warbler at Ebeme Lake, Maine, in August, 1879, which made the second record for the species in the State.

To make certain of its identity I sent the skin to Dr. T. M. Brewer, who wrote me (Oct. 26, 1879) that as well as he could make out the specimen was the Connecticut Warbler, but that he would get some one more *au fait* in plumage than he was to confirm or reverse his opinion.

Following this he returned the skin and wrote (Oct. 30): "I have shown the inclosed to Mr. Allen and have his confirmation of my own impressions. The *agilis* is rather an interesting specimen."

Lately the question of its correct identity was again raised, and to make assurance doubly sure I sent the skin to Mr. William Brewster for examination, giving its history. Mr. Brewster wrote me (March 28, 1886): "The case is of such importance, I have compared it carefully with large series of both *Oporornis agilis* and *G. philadelphia*. There can not be the slightest doubt as to its identity. It is a *perfectly typical Geothlypis philadelphia* in autumnal plumage." From Mr. Brewster's careful examination he is undoubtedly correct, and I would correct the record already made.—HARRY MERRILL, *Bangor, Me.*

'Aptoso-Chromatism.'—In the 'Ornithologist and Oölogist' for April, 1886 (Vol. XI, p. 49), Mr. Walter Hoxie has an article under the title 'Aptoso-Chromatism'—a term intended to designate the "'moultless color change' in the feathers of birds." Mr. Hoxie suggests that aptoso-chromatism is induced by the activity of the sexual organs, and claims its occurrence in both sexes, and cites in proof the changes in color noted in the Cardinal at the beginning of the breeding season. He finds that "the Black-bellied Plover, Red-breasted Snipe, Sanderling and Turnstone show a tolerably even ratio between perfect plumage and the development of the sexual organs, independent of the stage of moult." The argument is not very clearly stated, and the illustrations given relate in part to birds which undergo a change of color through a spring moult as well as independently of it. It is well known that many birds, particularly males, undergo a color change, more or less extensive and well-marked, as the mating season approaches, either in consequence of a partial moult, or without an actual renewal of the plumage. This coincidence of the change of color with the period of activity of the sexual organs seems to be looked upon by Mr. Hoxie as a relation of cause and effect, the former being due to the latter. While this may be true, certain facts may be recalled which tend to show that both are simply an expression or in-

dication of the complete maturation of the whole organism, so far as regards the first assumption of the nuptial plumage by young birds. In respect to the older birds, the donning of the nuptial dress and activity of the sexual organs are coincident phenomena of the breeding season, but that the latter is not necessarily the cause of the former seems evident from the breeding of young male birds before acquiring the nuptial dress, as is well known to occur in many species, familiar examples of which being the Purple Finch, the Redstart, and the Orchard Oriole. The subject, however, is an important one, well worthy of the most careful investigation.—J. A. ALLEN, *American Museum of Natural History, 77ht St. and 8th Ave., New York City.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

The Classification of the Macrochires.

TO THE EDITORS OF THE AUK:—

Sirs: Recent examinations of nine of the skeletons of the representatives of the three sub-orders of birds (Caprimulgi. Cypseli, and Trochili) now constituting, according to the Check-List of the American Ornithologists' Union, the order Macrochires, convince me, so far as skeletal characters go, that we are retaining in the same order birds that undoubtedly belong to very different orders. There is no question in the world but that the Swifts are widely separated from the Hummingbirds, and a comparison of the structural characters of any of the forms of these two groups will at once convince us that they are fully entitled to ordinal rank. The Cypseli are profoundly modified Passeres, coming nearer the Swallows in their organization than any other group of birds, and should be awarded a place in the system accordingly. On the other hand, the Trochili are fully entitled to an order by themselves, and further investigations are necessary to ascertain how they are approached, structurally, by other groups.

Again, this classification will leave the Caprimulgi standing out by themselves, as they undoubtedly should do, in an order of their own, as an examination of their organization goes to show that they have but little in common with the Cypseli, and are widely separated from the Hummingbirds.

My preliminary examination into the structure of this group has just been published (Dec. 1, 1885) in the 'Proceedings' of the Zoölogical Society of London, where much will be found which the limitations of space will prevent me from discussing here, but further investigations in the directions pointed out are of the highest interest and importance. It is

my intention, if nothing prevents, to further pursue the investigations I have already inaugurated, and thoroughly compare the remaining systems of these groups, more especially the muscular, arterial, and digestive systems. To this end it is very important that I should have my material as complete as American types can make it, and the principal object of this letter is to call the attention of the members of the A. O. U. to this matter, and to solicit their assistance in the work. As my desiderata are not extensive, and for the most part not difficult to obtain, I feel that I can look with certainty to the realization of my hopes in that direction.

I have already written to some of my friends in Arizona and California for alcoholic specimens of the various forms of Trochili, and all such donations of course will be fully acknowledged in my future contributions to the subject.

Alcoholic specimens of any of the Trogons are particularly desirable, and the following forms essentially so: *Antrostomus carolinensis*, two specimens; *Chætura pelagica*, six specimens; *Progne subis*, six specimens. And, as I have already said, any of the Hummingbirds.

The specimens should be properly tagged, giving donor, locality, date, etc., and placed in good alcohol in an ordinary screw-top glass fruit-jar, and packed round with sawdust in a box as small as is compatible with safe transportation, and sent C. O. D. to me by express. I would beg such persons as are willing to assist in this work, to communicate with me *before* sending material, in order to save expense (as express rates are very high), and the undue duplication of material.

Very respectfully yours,

R. W. SHUFELDT.

Fort Wingate, New Mexico, May 1, 1886.

NOTES AND NEWS.

THE second edition of Dr. Coues's 'Key' being already out of print, Messrs. Estes & Lauriat announce the third edition, which will contain the new nomenclature of the A. O. U. Committee, with all necessary corrections and additions to date. This edition will appear in two forms, one like the second edition, the other called the 'Sportsman's Edition' for use in the field, on thin paper, trimmed to a very narrow margin, and bound in flexible Russia leather covers.

THE Milwaukee Society of German Journalists and Booksellers have issued a prospectus of Mr. H. Nehrling's work on North American birds, entitled 'Die nordamerikanische Vogelwelt,' which is to be published by subscription in ten to twelve quarto parts, with colored plates, at $1 per part. A work in the German language on North American birds is still a desideratum, and one which is doubtless much felt by the German Americans; and no one is doubtless better fitted than Mr. Nehrling to supply

this want, as his various ornithological communications to various German periodicals and newspapers, both in this country and in the 'Fatherland,' have already well shown. We wish this timely enterprise the success it so well deserves.

Besides Mr. Capen's 'Oölogy of New England,' noticed briefly on an earlier page of the present number of 'The Auk,' we have also to note the recent appearance of the second edition of Mr. Oliver Davie's 'Nests and Eggs of North American Birds,' which is "increased in size and entirely rewritten." It will doubtless prove a welcome hand-book of the subject.

Parts 2 and 3 of 'Ornis,' the organ of the Permanent International Ornithological Committee, edited by Drs. R. Blasius and G. von Hayek, contains biological notes on some of the birds of Southeast Borneo, by F. J. Grabowsky; the report on bird migration for Heligoland for 1884, by H. Gätke, and the report for 1883 on the migration in Austria and Hungary, by Dr. K. von Dalla-Torre and Victor Ritter v. Tschusi zu Schmidhoffen, the latter alone comprising nearly 275 pages.

At the annual meeting of the Ridgway Ornithological Club, held May 13, the following officers were elected for the ensuing year: President, G. Frean Morcom; Vice-President, Ruthven Deane; Secretary and Treasurer, H. K. Coale; Curator and Librarian, Geo. L. Tappan. The Club was reported in a flourishing condition.

We are authorized to state, for the information of persons desiring to make exchanges of birds' skins or eggs with the National Museum, that no attention can be paid to applications or propositions for exchanges in which only *catalogue numbers* are used *instead of names*. If this could be borne in mind by those desiring to make exchanges, not only with the National Museum, but with other museums, much vexation and valuable time would be saved curators in hunting out and translating into names the numbers of the various check-lists in use to determine the species referred to by correspondents when using merely check-list numbers.

As the last pages of 'The Auk' go to press we have space to briefly note an important change, just made by Congress, in the status of the work on Economic Ornithology, carried on by Dr. C. Hart Merriam under the Department of Agriculture. Through the influence of Senator Miller of New York, not only has the sum of $10,000 been appropriated for carrying on the work for the present year, but this important branch of inquiry has been separated from the Division of Entomology, and made a separate division, with Dr. Merriam at its head. The scope of the work has also been extended so as to include investigations concerning the food-habits of mammals. The appropriation now made is for the "promotion of Economic Ornithology and Mammalogy; an investigation of the food-habits, distribution, and migration of birds and mammals in relation to agriculture, horticulture, and forestry; for publishing reports thereon; and for drawings and traveling and other expenses in the practical work of the division."